JAN 9 1931

The

British Medical Journal

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

Including an Epitome of Current Medical Literature.

WITH SUPPLEMENT.

No. 3650. SATURDAY, DECEMBER 20, 1930. **Price 1/3**

THE GERMICIDAL ACTION OF DIMOL

INTESTINAL ANTISEPTIC

Extract from Report by independent Bacteriologist appointed by "The Lancet."
(Full Report can be read in "The Lancet," 22nd February, 1930, p. 414.)

1. Determination of the Rideal-Walker coefficient of Dimol using organisms isolated from the faeces. (*See* Table I.)
2. Determination of the degree of dilution of the antiseptic leading to death of organisms in 15 mins. (*See* Table II.)

Test Organism.	TABLE I.—R-W coefficient (number of times Dimol more powerful than pure phenol).	TABLE II.—Degree of dilution leading to death of organisms in 15 mins.
B. typhosus	37	1:6500
B. dysenteriae (Shiga)	34	1:6250
B. dysenteriae (Flexner)	34	1:6000
Streptococcus faecalis	24	1:5500
,, pyogenes	27	1:6000
,, haemolyticus	28	1:6000
Pneumococci	32	1:7000
B. faecalis alkaligenes	30	1:6000
B. coli	30	1:5000

3. *Examination for toxicity.* — Single dose up to 0.02 g. (equivalent to 1/3 gr.) per kilogramme body-weight was given to rabbits without producing toxic effects. Such a dose corresponds to grs. 20 for a man weighing 10 stone, five times the dose advocated for therapy. No evidence of absorption as shown by carboluria was obtained. Repeated doses equivalent to two and a half times those recommended in therapy also failed to produce ill-effects when given three times over a period of four weeks.

CONCLUSIONS

1. Dimol intestinal antiseptic is found to possess a very high Rideal-Walker coefficient against the commoner organisms infecting the intestine.
2. The antiseptic kills completely these organisms in 15 minutes in dilutions ranging to 1 in 7,000.
3. The preparation shows no evidence of producing toxic effects in animals even when given in very large doses. No carboluria was produced.

Copy of full Report will be sent on application to:—

DIMOL LABORATORIES LTD., 40, LUDGATE HILL, LONDON, E.C.4.

ISSUED WEEKLY] [COPYRIGHT] [REGISTERED AS A NEWSPAPER

Trade Mark 'Progynon' Brand

Female "cyclical" hormone.

for oral and intramuscular administration

Biologically standardised

Direct *causal* effect in almost every gynaecological condition

Especially indicated in

Disturbances of Menstruation, the Climacterium and Delayed Puberty

Dragées. **Ampoules.**

New illustrated brochure with full particulars on request

Veramon

An Analgesic

of pronounced value in the *symptomatic* treatment of Menstrual Pain, etc. Induces rapid and protracted analgesia with—in therapeutic doses—no toxicity or carry-over effects.

Tablets—Powder.

Medinal

An Hypnotic

which induces restful and refreshing sleep resembling the natural, in all forms of Insomnia. Its ready solubility implies rapid effect and speedy elimination, with freedom from secondary symptoms.

Tablets—Powder—Cachets.

Clinical sample and literature on request from

SCHERING LIMITED, 3, Lloyd's Avenue, London, E.C.3

Or from the following overseas depots:

CEYLON—
Paul Winn & Co., Ltd., Colombo.

BRITISH INDIA—
Schering-Kahlbaum (India) Ltd., P.O.B. 2006, Calcutta.

AUSTRALIA—
Schering-Kahlbaum (Australia) Ltd., P.O.B. 3576 S., Sydney.

NEW ZEALAND—
F. & N. Suckling, Auckland.

SOUTH AFRICA—
Schering-Kahlbaum S. Africa (Proprietary) Ltd., P.O.B. 7539, Johannesburg.

STRAITS SETTLEMENTS & SIAM—
N.V. Handelmaatschappij v h Barmer Export Gesellschaft, Singapore & Bangkok.

DUTCH INDIES—
H.V. v h W. Biedermann & Co., Batavia, N.V. Handelmaatschappij v h Barmer Export Gesellschaft, Medan.

A British Medical Association Lecture

ON

MENSTRUATION AND IRREGULAR UTERINE HAEMORRHAGE OF OVARIAN ORIGIN.*

BY

JAMES YOUNG, D.S.O., M.D., F.R.C.S.Ed.,

GYNAECOLOGIST, ROYAL INFIRMARY; PHYSICIAN, ROYAL MATERNITY AND SIMPSON MEMORIAL HOSPITAL, EDINBURGH.

IT is, at first sight, a somewhat remarkable fact that, if we except such gross pathology as the tumours and the abnormal conditions arising from pregnancy, we are still largely ignorant of the causation of the commonest gynaecological symptom—namely, irregular uterine bleeding. On the other hand, it is not surprising that in the past our etiology has rested on a crude basis of pathology when we remember that our understanding of the physiological counterpart of these bleeding discharges—namely, menstruation—has itself been so incomplete. Within recent years a large amount of research has been directed to the elucidation of the physiology of the sex cycle, of which menstruation forms one essential phase, and in respect of some of the cardinal questions we are now in possession of a body of positive fact. It is to these new data, and the bearing they are certain to have on our clinical problems, that I now wish to invite your attention.

PHYSIOLOGY OF THE SEX CYCLE.

One of the most significant results of recent research is the establishment of the fact that, both in its inception and in its maintenance, the sex cycle of the ovaries and the accessory organs is dependent upon the anterior part of the pituitary body. The work of Cushing and others had for many years indicated some such association by directing attention to the failure of sex development found in some pituitary disorders. After extirpation of the hypophysis the sex glands of young animals remain infantile, and the secondary sexual characters fail to develop. Conversely, by injecting *immature* animals with extracts of the anterior pituitary obtained from either similar or foreign species, Evans[1] and others have shown that the ovaries become activated with the establishment of the sex cycle of the *adult* animal. The pituitary has no such action on the uterus and the accessory organs except through the medium of the ovary; it is impotent in castrated animals. Ovaries from immature animals transplanted into sexually mature animals become active, with the exhibition of follicular activity, ovulation, and the formation of corpora lutea, because they come under the influence of the adult pituitary. It is thus apparent that the sex apparatus functions only when and whilst it is under this pituitary activation. The exact nature of this impulse has not been thoroughly worked out. It is unquestionably hormonal, but whether there are one or two or more ingredients with different effects is uncertain. Some workers support one single influence, whilst others believe that there is one hormone that controls oestrus and ovulation and another which controls the corpus luteum.

The sex cycle throughout the mammalian kingdom exhibits the same general characters. Let us first consider the lower orders. In them, during the first phase of the cycle, the follicles in the ovary mature, and this is correlated with an activation of the uterus, vagina, and other accessory organs, which in the lower orders consists of "coming on heat" or *pro-oestrus*. This phase is succeeded by *oestrus*, during which alone coitus is possible, and it is at this time that the ripe follicles shed their ova either spontaneously, as in the dog, the mouse, etc., or only after coitus, as in the rabbit, the cat, and the ferret. Oestrus is succeeded by the rapid growth of the corpus luteum from the cells of the wall of the follicle or follicles that have ovulated. This is correlated with an increase in the size of the uterus and a progressive thickening of the endometrium, caused by a great growth in and activity of the glands and a vascularization of the stroma. At the end of this phase, unless pregnancy intervenes, the corpus luteum degenerates and the hyperplastic mucosa of the uterus recovers its more quiescent characters in preparation for the commencement of a new cycle. There are thus three main phases in the cycle: (1) the pre-ovulational or pro-oestrus, (2) the ovulational or oestrus, and (3) the post-ovulational or luteal. In some animals—for example, the horse and the sheep—such cycles succeed one another without intermission during the breeding season (the polyoestrous condition), whilst in other animals—for example, the dog—there is only one such cycle during each breeding season (the monoestrous condition), followed by a prolonged period of quiescence in ovaries and accessory organs (anoestrus). When ovulation is followed by pregnancy the corpus luteum and the correlated growth in the uterus and other organs, instead of retrogressing as they do in the infertile cycle, continue in a condition of progressive development. In some animals—for example, the dog, the rabbit, and the ferret—after ovulation without fertilization the corpus luteum continues to grow for a considerable time, and this is associated with such active changes in the uterus and mammary glands as to suggest a condition of pregnancy. To this prolonged luteal phase in a non-fertile cycle the term "pseudo-pregnancy" is given (Marshall[2]).

In general terms the sequence of events obtaining in the cycle of the lower animals is repeated in man and monkeys, but there are some striking differences which have led to some difficulty in identification. Here the cycle is polyoestrous, occupying about a lunar month, and there is no period of anoestrus. The ovarian cycle corresponds with that present in lower animals, consisting of a pre-ovulational phase of maturation succeeded by ovulation, which, in the primates, occurs any time between about the tenth and fourteenth days after the commencement of menstruation. From this stage follows the phase of luteal growth, during which the endometrium undergoes active changes involving the glands, the stroma, and the vessels. The most noteworthy distinction between the cycle of man and the primates and that of the lower animals is found in the characteristic monthly blood loss from the uterus which succeeds the stage of luteal growth, and which is associated with disintegration and shedding of a great part of the premenstrually overgrown mucosa. In man and monkeys this bleeding occurs each lunar month, and lasts for from three to five days. From this time the corpus luteum undergoes rapid degenerative changes.

The Significance of Menstruation.

It has commonly been believed that menstruation in man and monkeys is caused by a degeneration of the endometrium consequent upon the withdrawal of the luteal hormone, and that it is therefore timed by the declension in the corpus luteum known to occur at this stage. It has been suggested that the blood loss corresponds to the extravasation into the uterine mucosa known to occur at the end of a pseudo-pregnancy in some lower animals—for example, the dog (Marshall[2]). In favour of this conception there are several strong arguments. (1) It is established that for the premenstrual growth of the mucous membrane the corpus luteum is essential and, therefore, its degeneration must result in arrest of this growth activation. (2) Extirpation of the corpus luteum or the ovary containing it precipitates a menstrual flow usually within forty-eight hours. This has been established by many experiments both in man and in monkeys. (3) Conversely, it is known that pregnancy, when menstruation is in abeyance, is associated with continued growth of the corpus luteum. (4) In some animals—and there is some evidence of a similar nature in regard to woman—abnormal persistence of an active corpus luteum leads to arrest of the sex cycle. Taken together, these facts are in harmony with the view that menstruation is the culmination of the phase beginning with ovulation and ending with the luteal stage of the development of the follicle, and that, therefore, the timing of the event is registered by the timing of the follicular cycle.

This conception of menstruation has been finally invalidated by the observations of Corner,[4] Hartman,[5] Van Herwerden,[6] and others that in monkeys menstruation can occur regularly when there is no follicular cycle taking place in the ovaries—that is, when there is no

* Delivered to the Lanarkshire Branch of the British Medical Association in Glasgow, October 8th, 1930.

ovulation and no formation of corpus luteum. Moreover, in such animals there is no premenstrual growth in the endometrium. Further, this type of "non-follicular" menstruation occurs in healthy monkeys living in the wild state, and it is therefore not abnormal. There is evidence that a similar phenomenon can occur in women. It demonstrates that the menstrual cycle is to be considered as dependent upon some cyclic changes other than those of the follicle, and which are for this purpose more basic and essential. We may express it shortly by saying that there is a primary cycle with menstruation as one of its phases on which there is superimposed and accurately registered the secondary cycle of the follicle. These observations are in keeping with the findings of Parkes[7] that, after ablation of the entire follicular apparatus of the mouse by means of x rays, the oestrous cycle nevertheless continues. Further, as Hartman[5] has pointed out, several observers have shown the existence of abortive cycles in the anoestrous period of animals progressing towards oestrus, but before this—that is, the period of ovulation—has been actually reached (rat, dog, ferret). Moreover, Zondek[8] has shown that after feeding mice with thallium the follicular cycle continues but the uterine cycle is arrested. He attributes these results to the suspension of the oestrus-producing hormone of the ovary. These considerations imply the necessity for a reorientation of our outlook both in regard to the factors underlying menstruation and the interpretation of some of the experimental data upon which the primacy of the luteal relationship was based. We have seen that experimental removal of the corpus luteum precipitates menstruation. At the same time, there is evidence, both in man and in monkeys, that destruction of the maturing follicle, even before ovulation, causes uterine bleeding (Beckwith Whitehouse,[9] Hartman), so that it is not the fact of luteinization of the follicle that determines the effect of its extirpation. So far, we have no means of assessing the essential significance of these experiments. We may hazard the conjecture that they imply a sensitiveness of the basic rhythm to any traumatic assault inflicted on any part of the follicular or more purely reproductive apparatus of the ovary. This and cognate questions are of considerable interest to us as clinicians because of their possible bearing on the common irregularity in the menstrual cycle which we find in disease.

The nature of the cyclic variation in hormonal activity that determines the sequential events in the sex cycle, including menstruation, has been the topic of speculation. By some a continued production of the hormone by the ovary has been predicated and the cyclic manifestations attributed to rhythmic variations in responsiveness on the part of the uterus and other accessory sex organs. It has more commonly been held that the cyclic variations are determined by variations in hormonal content, which represent either alterations in the ovarian output under pituitary influences or a rise and fall in a threshold mechanism (Frank[10]). In this connexion the experiments of Pratt and Allen[11] and of Zondek[12] are suggestive. The former investigators working with castrated monkeys, and the latter in an ovariectomized woman, produced menstruation by the abrupt stoppage of repeated injections of the oestrus-producing hormone of the ovary. Frank, moreover, has found a sharp rise in the female sex hormone in the circulating blood (as tested quantitatively by its capacity to produce oestrus in castrated mice) seven days before menstruation, and that this continues during the premenstrual phase, to stop suddenly with the onset of the flow. The available data are thus in harmony with the view that menstruation is dependent upon the removal from the circulation of an oestrogenic hormone which, during the premenstrual phase, has been responsible for an activation of the uterus.

Menstruation a Function of Implantation.

We have seen that it is impossible to explain the bleeding phase of the cycle in man and monkeys on the basis of an analogy with the phenomenon of pseudo-pregnancy in lower animals. The analogy breaks down from the unequivocal finding that, whereas the corpus luteum is essential for pseudo-pregnancy, it is not necessary for menstruation. An attempt has been made by some observers to identify menstruation with the genital haemorrhage which in some animals occurs during pro-oestrus. Thus, in the dog, during the phase of maturation of the ovarian follicles and even into the period of ovulation itself (oestrus), there is a bleeding discharge from the mucous membrane, which may continue for as long as a week. Against this conjectured analogy between menstruation and such pro-oestrous bleeding, however, there is the very strong argument that in the primates ovulation typically takes place between ten and fourteen days after the onset of menstruation, and that there is therefore an interval of from six to ten days between the cessation of the bleeding and ovulation. It may thus be contended that, so far from throwing light on the inner meaning of menstruation, such attempted analogies as I have mentioned serve rather to emphasize the biological uniqueness of the form this phase of the cycle assumes in man and monkeys. Many years ago (1911) I[13] pointed to the fact that this phase of bleeding into and from the mucous membrane of the uterus is found in those organisms (man and monkeys) in which, at the corresponding phase of the fertile cycle, placentation is accomplished by a free extravasation of blood in the same regions. I further showed that a personal study of two early human ova, the description of which I[13] have published elsewhere, and of tubal pregnancy, provided conclusive proof that the young trophoblast obtains its blood supply by provoking a wide gaping of the maternal vessels and a free extravasation of blood. These conclusions, it was pointed out, were supported by the descriptions given for other early ova. There was, moreover, clear evidence that these striking tissue changes are produced by a chorionic hormone which acts by eliciting a vascular and tissue response similar to that present in the pre-bleeding phase of menstruation. It was contended that these observations alone satisfactorily explain (1) the peculiar structural properties of the endometrium which is adapted to respond in this specific way to the hormone, and (2) the biological significance of the bleeding phase in man and monkeys and its time relation to ovulation. I have expressed the relationship between menstruation and implantation somewhat figuratively by saying that the endometrium bleeds in anticipation just as it bleeds with realization.

Within recent times Hartman[5] and Corner have directed attention anew to these interesting biological questions. Corner,[14] in a very clear statement of the position, says:

"My conjecture is thus that in order to provide for the highly specialized embryonic implantation of primates, with its opening of the maternal blood vessels into the intervillous spaces, the endometrial process is carried so far as even to cause bleeding into the tissues during the last days of the interval, at the time during which the early embryo is to be implanted. The action of the embryo alters the latter part of the process so as to inhibit or limit the haemorrhage; but if no embryo be present to utilize the extravasation, then the blood escapes into the uterine lumen and externally visible bleeding occurs. Such a hypothesis seems to render the menstrual process something more than a pathological wastage, and also suggests a reason for its total absence in species which have less specialized forms of implantation."

The "hormonic machinery" by which, with embedding of the ovum, widespread bleeding into the mucosa is accomplished necessarily demands some localization of the process after the ovum's needs are complete. Otherwise the hormone soaking through the tissues and reaching the distant areas of the sensitized mucosa via the blood stream must provoke extensive and disastrous bleeding. In my early work I suggested that we might see in the decidua the method by which this generalized inhibitory mechanism is expressed, and I pointed out that such a view has the advantage of accounting for the universal distribution of the decidua (reflexa, serotina, and vera), an explanation obviously lacking in the orthodox view that it is laid down to protect the maternal tissues against the inroads of the trophoblast. This conception, which contains a germ of truth, arose at a time when the opening up of the maternal tissues was erroneously believed to be accomplished by a phagocytic action of the chorionic cells. I have shown that in tubal pregnancy we sometimes discover a striking demonstration of the role thus attributed to the decidua in that the only areas of the tubal wall protected against this

hormonal dissolution are those areas which can exhibit an effective decidual response—that is, the mucosa. The existence of a decidua in the uterus in such cases can be similarly explained. This conception of the antihormonal function of the decidua necessarily, in view of recent work, involves a restatement of the role of the corpus luteum. The work of Loeb and others has shown that it is this body that confers upon the endometrium its deciduability, and this, taken in conjunction with the above considerations, enables us to formulate more exactly the part which it is known to play as an essential pregnancy organ.

The Placental Hormones.

Many observers have shown that hormones with properties similar, on the one hand, to the oestrus-producing hormone of the ovary, and, on the other, to that of the anterior pituitary, can be isolated in considerable amount from the human placenta. There is a good deal of evidence that these hormones are directly elaborated in the organ, and are not, as has been suggested, merely transferred there for storage. Whilst the large scale on which they are manufactured by the placenta would seem to leave no doubt that they subserve some important pregnancy functions, the exact nature of these functions remains a mystery. I have indicated above how in the early phase of placentation there is recognizable evidence of the hormonal activity of the trophoblast. It is now well known that the secretion of the hormone similar to that of the anterior pituitary in the urine of a pregnant woman forms the basis for the very sensitive Zondek-Aschheim test for pregnancy. The urine is injected into immature mice, and the activation and luteinization of the ovarian follicles constitute a positive result.

Pathological Uterine Haemorrhage.

The impetus which the new discoveries have given to the study of sex physiology has expressed itself also in a renewed study of the pathology of the sex process. At the same time, the uncertainty still surrounding the basic factors of function imposes a limit on the extent to which we can appeal to physiology for aid in our clinical problems. For this reason it is natural that, whilst the development of our pathological studies has necessitated much restatement of fact, in regard to the essential causative agencies we are still largely ignorant. We have seen that the physiological function of menstruation is under the hormonal regulation of (1) the anterior pituitary and (2) the ovary, which by a co-ordinated mechanism operate on (3) the uterus. Not unmindful of the fact that diseased processes may, and not infrequently must, influence this tripartite mechanism from without, we may profitably pass under review the ways in which each member of it may contribute to the production of irregular or excessive uterine bleeding.

The Anterior Pituitary and Irregular Uterine Haemorrhage.

On this question there are few data. It is reasonably certain that dystrophia adiposo-genitalis (Fröhlich's syndrome), with its arrested sex functioning and amenorrhoea, is determined by hypofunction of the anterior pituitary. On the other hand, except perhaps in the case of acromegaly, where there is commonly an initial menorrhagia, we have no direct evidence of the part played by the pituitary in producing excessive bleeding. At the same time, the primary part which it is now recognized to play in the control of the ovary will make it necessary for us in the future to bring it increasingly under scrutiny in all ovarian dysfunction associated with irregular bleeding. It is, in the meantime, legitimate to conclude that in many instances the well-known influence of mental excitement or shock on menstruation may arise from a sympathetic disturbance transmuted in the pituitary into an endocrinal stimulus to the ovary. Hence, for example, we may imagine an explanation of the frequency with which menstruation starts prematurely in the patient faced by the ordeal of the examination room. On the basis that uterine haemorrhage of obscure origin may be controlled from the pituitary, Hofbauer[15] and others have employed x-radiation of the region of the sella turcica.

Uterine Haemorrhage of Ovarian Origin.

In a paper published in 1913, and entitled "Uterine haemorrhage of ovarian origin,"[16] I directed attention (to quote from the paper) to

> "those cases where excessive menstrual and an intermenstrual loss are present, and where on examination nothing abnormal or only some uterine enlargement is found. Such cases are very common. They are unceremoniously thrown into that lumber-room of classification—endometritis. As a sort of hit in the dark curettage is done. On microscopic examination there is no evidence of inflammation, but only an oedematous and haemorrhagic endometrium without, or more commonly with, an increase in the glandular elements. . . . Many cases of glandular increase are certainly pathological. But for them 'glandular endometritis' is a misnomer."

The views then expressed sprang from a conviction based upon an extensive study of the pelvic pathology in such "bleeders." This, characterized, as it typically was, by general uterine enlargement and endometrial thickening, partook rather of the nature of an exaggeration of the functional changes occurring during the normal cycle. The paper included a study of two typical cases where, in association with this pathology, there were haemorrhagic lesions in the corpus luteum of the ovary. I further emphasized that

> "where there is found on examination nothing abnormal except some uterine enlargement, and where the mucosa is found to exhibit the appearance of so-called 'glandular endometritis,' an ovarian source should be suspected."

Subsequent experience has confirmed me in the views then expressed that, except in rare instances, the terms chronic endometritis, chronic metritis, and fibrosis uteri, as ordinarily employed for such cases, spring from a misreading of the essential pathology. A true histological picture of endometritis is rare, apart from an infected childbed or abortion, degenerating tumours in the interior of the uterus, and those other conditions, such as infection after operation, in which the history and pathology present more or less acute characters. Similarly, a true metritis I have never seen, except in the unequivocal presence of inflammation—for example, in an adhesive peritonitis in which uterus and infected appendages are involved in a contact infection. The investigations of Schroeder[17] on metropathia haemorrhagica—the term which he has given to a common condition exhibiting, in association with irregular and excessive bleeding and a proliferative lesion in the uterine musculature and mucosa, characteristic ovarian changes—have directed attention to ovarian disease as a frequent factor in chronic bleeding disorders. Beckwith Whitehouse,[18] in this country, has, in a series of communications, emphasized the same lesson, and has sought to explore the field of physiology for the solution of some of the problems in pathology. More recently Wilfred Shaw[19] has published the most comprehensive attack on the subject that has so far appeared, consisting as it does of a combined clinical and pathological study of 200 consecutive cases of irregular uterine bleeding at St. Bartholomew's Hospital, excluding instances of malignancy, polypi, caruncles, erosions of the cervix, and senile vaginitis. Wilfred Shaw was able to divide the cases into different classes. (1) Of the total, 50, or about 25 per cent., fell into the category of metropathia haemorrhagica. In 50 per cent. of these there was a uniform thickening of the musculature of the uterus and, typically, the endometrium was thick and polypoidal and the glands were cystic and increased. The ovaries contained large unruptured, or recently ruptured, cystic follicles, and corpora lutea were rare. Cases occurred at any age from puberty till after the menopause, but the chief age incidence is 40 to 50. Frequently before the characteristic continuous haemorrhage there was a period of amenorrhoea of a duration of one month or more; 80 per cent. of the women were parous. Schroeder has explained the bleeding as being due to the absence of the inhibitory influence of a corpus luteum. (2) The second class, including 72, or 36 per cent., exhibited in association with excessive loss, a reduction of the menstrual cycle to two or three weeks. Examination of the ovaries showed a corresponding alteration in the cycle of ovulation. The chief age incidence again is between 40 and 50. Shaw attributes the menstrual abnormality and the uterine

pathology to hyperactivity of the ovaries. (3) In a further class there were 27 cases, or 13.5 per cent., in which the essential clinical features consisted of an augmented blood loss associated with a lengthening of the cycle to thirty-five or forty-two days. In some the newly acquired spacing of the cycle became more or less regular, whilst with others the cycle was irregular, varying between three and six weeks. There was again evidence of an underlying ovarian aberration. (4) In 48 cases out of the total the etiology was obscure, and, whilst ovarian causes might be operative, this could not be established. (5) In only 13, or 6.5 per cent., was there histological evidence of endometritis, and in all except one the symptoms had not extended beyond two months. In none of Shaw's cases were there findings warranting an explanation based upon such conditions as chronic metritis and fibrosis uteri; and, further, it is stated that "there is no evidence to support the view that cases of irregular uterine haemorrhage are determined by subinvolution."

These investigations are of great importance, and, if confirmed, they will necessarily demand a complete re-orientation of our outlook in regard to this question, for they infer that, in the absence of a gross lesion in the uterus, chronic bleeding diseases, in a ratio of over 70 per cent., are associated with ovarian disorders. At the same time, the exclusion of a primary uterine factor and the invocation of an ovarian dysfunction do not explain the disease complex, for we are still left with the necessity of accounting for the ovarian disturbance. For this we must await the outcome of future research. In this connexion I[20] have elsewhere pointed to one such possible factor in the frequency with which chronic cervicitis is associated with menstrual arrhythmia and excessive loss. I have found such menstrual derangements in 82 out of a consecutive series of 124 cases—that is, 66 per cent. Other observers have referred to the same fact. Thus Masson and Parsons[21] found that menstrual irregularity was the chief complaint in 25 per cent. of their cases of chronic cervicitis, although a larger number admitted deviations when specifically questioned. Jeff Miller[22] and Behney[23] also refer to this relationship. In these cases there is no pelvic abnormality capable of accounting for the menstrual irregularity and excess, the examination revealing nothing more than some general uterine enlargement and some hyperplasia and proliferation of the endometrium—the conditions, that is, which we have seen to accompany ovarian disorders. Moreover, as I have shown, in a considerable number the menstrual disturbance clears up after treatment limited to the cervical condition. Behney has had a similar experience, obtaining cure of menorrhagia in 63 per cent. of his cases after cauterization of the cervix. For these reasons I have suggested that in some way which is at present obscure, perhaps via the rich sympathetic supply of this region, we may conclude that the cervical lesion leads to involvement of the ovarian function. There is evidence in the lower animals of an intimate nerve relationship between the cervix and the ovary. Thus, in the mouse, mechanical irritation of the cervix causes the prolongation of the luteal phase normally accomplished by coitus, and in the rabbit coitus, whether fertile or infertile, produces ovulation. It is likely that these phenomena, whilst originating in sympathetic impulses, are transformed by the pituitary into hormonal influences sent to the ovary, and it is conceivable that pathological impulses from the cervix may initiate through similar channels an aberration of ovarian function. I have shown that positive evidence of disease of the ovarian follicular system was found in two such cases in which the abdomen was opened for the purpose of hysterectomy.

Differential Diagnosis and Treatment of Irregular Haemorrhage of Ovarian Origin.

In many such cases the diagnosis can be made with approximate accuracy from a study of the clinical history combined with the absence of any gross pathology found on pelvic examination. The bulk of the cases occur in women between the ages of 40 and 50, however, when fibroids and cancer loom large as causes of haemorrhage, and to exclude these an exploration of the uterus is necessary. Cervical cancer, with its foul discharge and its indurated, friable, and frequently excavated lesion, and its irregular, intermittent bleeding, is rarely a cause of difficulty. In corporeal or endocervical cancer, in small fibroid polypoidal growths and the chronic bleeding from placental fragments, exploration alone reveals the condition. The bleeding from threatened abortion may occasionally cause confusion, especially since, in such conditions as metropathia, the continued bleeding may be preceded by amenorrhoea. It would seem that some post-menopausal cases of bleeding are caused by ovarian "rejuvescence," but, mindful of the frequency with which bleeding at this time connotes malignancy, cervical cancer should be suspected; with a healthy cervix, curettage, followed by microscopical examination of the material removed, is always necessary. In the last series, comprising a total of seventy-two consecutive cases of post-menopausal haemorrhage which I have had in hospital, there were sixteen cases in which no uterine pathology adequate to explain the condition was found, and, in a majority of such cases, ovarian factors may be postulated. In three there was a condition of simple cystadenoma of the ovary.

The treatment to be adopted in these conditions will be determined by various factors, of which age is the chief. The fact that we are progressing towards a rational pathology justifies the hope that we are within measurable distance of a scientific therapeusis directed towards the factors that disturb the ovarian function. Meanwhile, however, until we have this knowledge, the only alternative left to us in many cases consists of symptomatic treatment for the bleeding. It is my practice in women over 40 to carry out an exploratory curettage to establish a diagnosis. When malignancy is excluded, and as curettage is occasionally followed by cure, I discharge the patient with instructions to report if excessive bleeding returns. In this event she is sent to the radiologist for *x*-radiation of the ovaries and the production of an artificial menopause. In the hospital patient this involves three visits as an out-patient. Radium may be employed as an alternative. This is my routine practice also in younger women where the failure of other treatment precipitates the need for drastic measures. The employment of these means has, in my practice, led to the elimination of hysterectomy for such cases. The operating records no longer show, as in former days, the comparatively frequent tale of "hysterectomy for intractable haemorrhage," with its not inappreciable mortality, apart from the mental and physical distress associated with all major surgery. Suffering women have much reason for gratitude since the advent of radiation therapy beyond the relief it confers in the sphere of cancer treatment. In young women these conditions are frequently a source of great anxiety because, on the one hand, palliative measures are so commonly ineffective, and, on the other hand, the above drastic therapeutic measures constitute at this age so terrible an alternative. The haemorrhage of puberty and of girls in their teens, which probably is practically always hormonal in origin, sometimes reacts satisfactorily to curettage, general hygienic measures, the administration of calcium salts, etc. In such cases, and in women still in the reproductive period, we must necessarily postpone to the last moment any decision which is in its nature irrevocable, in the hope that time will bring relief. The commercial ovarian preparations of proved activity, such as sistomensin, agomensin, etc., may be tried, although I have not found the same response with such drugs in cases of haemorrhage as in dysmenorrhoea, in which the effects may be remarkable. Such therapy is, in the present state of our knowledge, necessarily largely empirical, and must remain so until our knowledge increases. In intractable cases *x*-radiation in minimum dosage may be cautiously tried in the hope that alleviation without sterilization may be accomplished. On this treatment some gynaecologists have reported favourably, although there is always attendant on it the spectre of overdosage, leading to permanent infertility. I have had better results with radium administered in minimal doses than with *x* rays.

In cases associated with cervicitis, in my experience the best treatment at all ages is the use of the cautery. The cervix is dilated to a degree sufficient to allow access

of the electric cautery to the internal os. Three linear incisions behind and three in front are made from internal to external os and over the catarrhal patch on the vaginal portion. The cautery sears through the mucosa into the subjacent fibro-muscular wall, and Nabothian follicles are individually punctured. In some cases a repetition of the process at the end of a month is required. After each application a plain warm water vaginal douche should be given daily for a week or ten days to act as a mechanical cleanser, and to facilitate the removal of the sloughs which sometimes form.

Pathological Haemorrhage of Uterine Origin.

It will have become apparent from the preceding remarks that recent advances in our knowledge have enabled us to lift bodily out of this category a large group of cases which were previously and erroneously considered as having a uterine cause for the irregular bleeding, and which are now to be regarded rather as ovarian aberration with secondary uterine change. This applies to a large number of these cases previously described under such headings as "fibrosis uteri," "chronic metritis," "chronic polypoidal endometritis," "chronic glandular endometritis," and "subinvolution." The discovery in cases of fibromyoma of ovarian changes similar to those found with the above conditions even raises the question as to whether the irregular bleeding found with these tumours may not, in reality, sometimes spring from this cause. Frank has even suggested that the tumour may derive its origin from localized overgrowth in the uterine wall, arising from ovarian hyperactivity.

SUMMARY.

1. Menstruation can occur in the absence of ovulation and the corpus luteum, and it cannot, therefore, be interpreted in terms of an analogy with pseudo-pregnancy in lower animals, for which a luteal phase is necessary.

2. Further, its place in the cycle in relation to ovulation undermines the conjectural analogy between it and pro-oestrous bleeding in lower animals.

3. These analogies can be further invalidated, and the essential meaning of its existence in man and monkeys explained by recognizing it as a function of the peculiarly haemorrhagic type of implantation of the ovum found in these higher animal forms. The bleeding of menstruation and the bleeding of implantation are homologous, in that they occupy the same place in the sex cycle, and the external bleeding expresses the escape of the unwanted "implantation blood" in an infertile or a non-ovulating cycle.

4. Many of the bleeding disorders erroneously attributed to such conditions as chronic glandular endometritis, chronic metritis, fibrosis uteri, etc., are in reality expressions of disturbances of unknown origin in the ovarian (or combined pituitary-ovarian ?) regulation; and definite clinical entities with correlated structural changes in the ovary can be recognized.

REFERENCES.

[1] Evans, H. M.: Harvey Lectures, 19, 1924.
[2] Marshall, F. H. A.: *Introduction to Sexual Physiology*, Longmans, Green and Co., London, 1925, p. 43.
[3] Idem: Ibid., p. 53.
[4] Corner, G. W.: *Journ. Amer. Med. Assoc.*, 1927, lxxxix, 1838.
[5] Hartman, C. G.: *Amer. Journ. Obstet. and Gynecol.*, 1930, xix, No. 4, 511.
[6] Van Herwerden, M.: Quoted from Hartman.
[7] Parkes, A. S.: *Internal Secretions of the Ovary*, Longmans, Green and Co., London, 1929, p. 143.
[8] Zondek, B.: *Arch. f. Gynäk.*, 1927, 132.
[9] Whitehouse, B.: *Trans. Edin. Obstet. Soc.*, 1926–27, xlvii, 139.
[10] Frank, R. T.: *The Female Sex Hormone*, Baillière, Tindall and Cox, London, 1929, p. 192.
[11] Pratt, J. P., and Allen, E.: *Journ. Amer. Med. Assoc.*, 1926, lxxxvi, 1964.
[12] Zondek, B.: *Klin. Woch.*, 1926, v, 1521.
[13] Young, J.: *Reproduction in the Human Female*, William Green and Sons, Edinburgh, 1911; *Proc. Roy. Soc. Med.*, Obstetrical Section, 1910-11, iv, 291; *Trans. Edin. Obstet. Soc.*, 1925–26, xlvi.
[14] Corner, G. W.: *Physiological Review*, 1923, iii, 476.
[15] Hofbauer, J.: *Zentralbl. f. Gynäk.*, 1924, xlviii, 65.
[16] Young, J.: *Trans. Edin. Obstet. Soc.*, 1912-13, xxxviii, 140.
[17] Schroeder, R.: *Arch. f. Gynäk.*, 1919, cx, 633.
[18] Whitehouse, B.: *Lancet*, March 28th and April 4th, 1914; *British Medical Journal*, October 23rd, 1926; *Trans. Edin. Obstet. Soc.*, 1926-27, xlvii, 139.
[19] Shaw, Wilfred: *Journ. Obstet. and Gynaecol. of the British Empire*, 1929, xxxvi, No. 1, 1.
[20] Young, J.: *British Medical Journal*, March 29th, 1930.
[21] Masson, J. C., and Parsons, E.: *Amer. Journ. Obstet. and Gynecol.*, 1928, xvi, 348.
[22] Miller, C. Jeff: *Journ. Amer. Med. Assoc.*, 1926, lxxxvii, 1685.
[23] Behney, C. A.: Quoted from 21 above.

CONGENITAL DISLOCATION OF THE HIP.

LATE RESULTS OF TREATMENT BY MANIPULATION.*

BY

E. LAMING EVANS, C.B.E., F.R.C.S.,

SENIOR SURGEON, ROYAL NATIONAL ORTHOPAEDIC HOSPITAL.

(*With Special Plate.*)

FOR the purposes of this communication an attempt has been made to examine clinically and by *x* rays 70 cases of congenital dislocation of the hip which were treated by me by manipulation at the Royal National Orthopaedic Hospital between the years 1903 and 1920. I have succeeded in examining, within the last two months, 25 of these cases, involving 32 joints. All surgeons in large cities have found a difficulty in tracing patients after a lapse of many years. Stephens[1] reports that he could examine and *x*-ray 7 patients only out of 185 treated in the Hospital for Ruptured and Crippled between 1891 and 1910.

The 25 cases comprised: 4 right unilateral (4 joints), 14 left unilateral (14 joints), and 7 bilateral (14 joints). The average period since reduction was upwards of fifteen years, and the average age of the patient at the time of reduction was upwards of 4¼ years.

Method Employed.

During the earlier years the Lorenz method was employed, with its violent stretchings, its "hackings," and its leverage over a wedge. Gradually less violence and fewer stretchings were found sufficient for reduction, and traction with the fingers replaced the wedge. With few exceptions a short spica has been employed, fixing one hip only in unilateral cases. The first plaster has fixed the limb in the position of greatest stability, and as much as 120 degrees of flexion and 110 degrees of abduction have been employed. But these extreme positions have been maintained for the shortest possible period, and usually within four to six weeks of reduction fixation in the position of 90 degrees flexion, 70 degrees abduction, and 0 degree of rotation has been possible. This position has been retained until the end of the fixation period, and no attempt has been made to diminish this state of 90 degrees of flexion or 70 degrees of abduction. Exceptionally, a long spica including the foot has maintained the limb in the position of abduction and internal rotation. I have very rarely found the degree of anteversion sufficient to necessitate this position. The period of fixation has varied from less than a month in a 9-months-old child to as much as one and a half years when stability was unassured. A patten, usually 5 to 6 inches high, has allowed locomotion during the fixation period in unilateral cases. After removal of the plaster the child has been encouraged to kick about and perform active exercises in the supine position for three months. Standing has not been allowed until three months have elapsed from the end of the period of fixation. I am afraid in some cases this rule has been broken by parents, and the child has walked on its softened and decalcified neck, and that some of the changes in the neck are due to this. I consider this is the most important period of treatment, but in-patient treatment at this stage has been found impossible owing to pressure upon beds. Massage and passive movements have rarely been employed. A plaster bed, holding the limb in 90 degrees flexion and 70 degrees abduction, has been used at night until three years after the date of reduction. For three months after walking has commenced a patten 1½ inches high has been used on the sound leg to keep up the abduction on the affected side.

Clinical Results.

The clinical results of these 25 cases are as follows: bad 1, poor 2, good 13, perfect 9. Unfortunately there is no standard of criterion when we try to classify end-results in terms of function, and we are faced with many difficulties. There are two constant disabilities in the unreduced hip, however well it may function for locomotion —namely, shortening and limp. To arrive at the measure of shortening in unreduced hips, I used the opportunity,

* Read before the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

when examining over 80 cases of congenital dislocation of the hip at the Royal Surgical Aid Society during the years 1909 to 1919, of estimating the shortening in 50 consecutive cases of unilateral dislocation, which had not been subjected to any attempt at reduction; 28 were left-sided and 22 right-sided. The ages of this series ranged from 13 to 67, with a mean age of 26.7 years; and shortening ranged from 1½ inches to 5 inches, with a mean shortening of 2.55 inches. The variations of length in the 18 unilateral cases under review show a range of 1 inch shortening to 1/4 inch lengthening, with a mean shortening of 0.375 inch. The limp is an unmeasurable and variable quantity, and no single clinical examination or cinematograph record is completely trustworthy. A patient may not limp when examined or before the camera, yet with slight fatigue an asymmetry in the walk may show, from weakness in the pelvi-trochanteric muscles, however stable the hip-joint. I have therefore taken the patient's word that he or she limps, although my own observation may not have confirmed this at a short clinical examination. The presence of a slight arrhythmia is compatible with a good functional result. Of the 3 cases which gave bad or poor results, one was bilateral, reduced at the age of 8 in 1912. Subsequent experience shows that this treatment was inapplicable, and should not have been employed. Yet the patient works as a shop assistant, and is on her feet all day. *X*-ray examination shows anterior transposition and concentric reduction, with a flattened head and atrophied neck. Another is a right-sided condition, reduced at the age of 6 in 1914 with a concentric reduction, with active flexion of 30 degrees, abduction 30 degrees, but no rotation at all. She works as a dressmaker, and swims and dances a little. The third is a bilateral case, reduced at the age of 4 in 1913. She works as a milliner, can swim two lengths at the baths, and cycles ten miles. She shows anterior transposition and eccentric nearthrosis. Thirteen cases (17 hips) giving good results have full, free, and painless movements. Six exhibit a slight limp when examined with a loincloth only or after exertion. They show one anterior transposition, four eccentric nearthroses, and twelve concentric reductions, while nine, giving perfect results, are indistinguishable from normal, except in the circumferential measurement of the upper thigh. In five there is one to two inches of atrophy; in two even this difference is absent, each measuring 22 inches in circumference. *X*-ray examination shows two concentric reductions with coxa valga, and eight indistinguishable from normal.

X-Ray Records.

Turning now to the *x*-ray results, I am able to show records of all these hips, taken within the last two months. Of these 25 per cent. are accounted for by three anterior transpositions and five eccentric nearthroses, the remainder (75 per cent.) being sixteen concentric reductions and eight which are normal. In the three transpositions, two occurred in bilateral cases classed bad or poor; one occurred in a unilateral case reduced in 1906, and is a good functional result. In the five eccentric nearthroses four occurred in unilateral cases with good function; one occurred in a unilateral case with poor function. In the sixteen concentric reductions which show abnormalities, the acetabulum may show an increased obliquity or some shallowness: the femoral head may show irregularity in its sphere or flattening: the neck may show valgal or varal bending, anteversion, and stunting. I hold that some of these changes are inevitable, whatever treatment is employed, and are due to the same faulty growth impulse which caused the original malformation—namely, an error of mesoblastic growth. The functional results of the cases shown with shallow acetabula and increased obliquity are so good and the joints so stable that I think that roof formation by an osteoplastic graft is only called for in extreme cases of shallowness and obliquity. Whether the changes in the head and neck are due to an absence of growth impulse, to trauma from reduction, thus allying it to Kümmell's disease, to osteochondritis, to osteo-arthritis juvenalis, or to several of these causes, still remains an open question. Obviously trauma should be avoided and compression prevented during the decalcified stage, the former by reduction at an early age, and the latter by after-care. Froelich,[2] Judet,[3] and Bade[4] agree that a good functional result is consistent with such changes in the bony constituents of the joint. Bade has observed good functional results with eccentric acetabular formation. The normal deep acetabulum and long femoral neck at 130 degrees are provided for athletic, gymnastic, and acrobatic feats; walking, running, dancing, and swimming can be carried out with shallower acetabula and shorter neck, provided the joint is stable and enjoys free and painless motion. The eight joints that are classed as normal are indistinguishable from the hip-joint on the sound side.

CONCLUSION.

My view is that manipulative reduction at the earliest age should be employed. In children under 2 or 2½ the reduction can usually be obtained with the greatest ease whilst gently stretching the adductors. In older children, if an early reduction is not obtained, two further attempts at intervals of seven to ten days should be made, when reduction without force will usually be possible. After three unsuccessful attempts, capsulotomy is indicated in order to deal with the obstruction of soft parts. If, after successful reduction, redislocation occurs from failure of growth of the superior and posterior borders of the acetabulum, the border should be levered over the head and held by a bone graft. The age limit for manipulative reduction is 7 to 8 in unilateral, and 5 to 6 in bilateral, cases. In cases beyond these age limits open reduction is indicated.

REFERENCES.
[1] Stephens, Richmond: *Journ. of Bone and Joint Surgery*, 1928, 535.
[2] Froelich: *IIIe Réunion Annuelle Société Française d'Orthopédie*, October 5th, 1921.
[3] Judet: *Bull. et. Mém. Soc. des Chir. de Paris*, 1928, xx, 487.
[4] Bade: *Deut. med. Woch.*, 1929, lv, 878.

PLEURAL EFFUSIONS IN GENERAL PRACTICE.*

BY

W. ARNOTT DICKSON, M.D., M.R.C.P.ED., F.R.C.S.ED., D.P.H.,

TUBERCULOSIS OFFICER, GLOUCESTERSHIRE; CLINICAL MEDICAL OFFICER, GLOUCESTERSHIRE COUNTY COUNCIL.

(*With Special Plate.*)

I HAVE chosen this subject for two main reasons. First, it has been impressed on me that in the examination of cases of chest disease the possibility of effusion is not sufficiently kept in mind and so it is often missed; and secondly, there is even yet a lack of clear teaching as to what should be done when an effusion has been found.

Let me illustrate these assertions by examples taken from two of the great teaching hospitals of London. At an inquest held on a man who had died under an anaesthetic in a London hospital while being operated on for gallstones, the coroner summed up as follows:

> "There was a large amount of fluid in the chest, but it was not discovered. It ought to have been, but it was not. This man has died under an anaesthetic administered for the purpose of an operation for a disease from which he was not suffering. It is a case of mistaken diagnosis."

With regard to treatment, I heard Sir Thomas Horder open a discussion on this subject at Manchester, in which he mentioned that he very seldom saw a pleural effusion in hospital, as his house-physician had aspirated before he had had an opportunity of examining the patient. These selected graduates are apparently under the delusion that the correct treatment for a pleural effusion is to aspirate as completely as possible immediately it is diagnosed. "If they do these things in a green tree, what shall be done in the dry?"

Classification of Effusion.

As is well known, effusion may be a sequel to injury of the chest wall, and the nature and subsequent course of such an effusion, which practically always contains blood, is determined by the character and severity of the injury. These cases are really surgical, and will be excluded from consideration. We need only study two varieties: (*a*) clear; (*b*) thick.

* Substance of a presidential address to the Gloucestershire Branch of the British Medical Association, November 13th, 1930.

Clear Effusions.

The clear effusion is the commonest one with which I deal. There is a simple oedema of the pleural sac, occurring most frequently in heart disease, which may for my purpose be dismissed in a word. It is a transudation of clear fluid of low specific gravity, non-inflammatory in nature, and is associated with oedema elsewhere. It is only part of a general interference with the circulation of tissue fluids, and its importance in the pleural cavity is purely mechanical. It should be removed when it is causing distress, and as often as is necessary, for it shows little tendency to absorption, the cause as a rule being continuous and progressive.

I wish especially to direct attention to the clear effusion often coming on insidiously and without evident cause—the so-called *primary* or *idiopathic effusion*. This is an exudate, with a higher specific gravity and a firmer clot than the transudate of heart disease. (Should doubt exist in any particular instance the pathologist will soon settle the question if 5 c.cm. are submitted to him.) It is the result of an inflammatory process, and the process which causes it is tuberculous. An effusion of this type should never be regarded, as it often is, as an illness in itself, to be considered cured when the fluid has apparently disappeared; it is proof of an underlying lesion demanding long and serious treatment. The many demonstrations, from both the pathological and clinical standpoints, that this effusion is essentially tuberculous, are still unheeded by numbers of practitioners; indeed, there is no lack of active opponents of the idea.

The *Lancet* report of the Manchester discussion on this subject, to which I have already referred, contains the following passage: "Dr. Russell objected strongly to the great interference with working life, and the mental agony inflicted by a tuberculous outlook in these cases. Treatment by ordinary means was quite satisfactory." There are, of course, numerous instances of tuberculous manifestations subsiding under treatment by ordinary means, even in the absence of a correct diagnosis; but who is to be the infallible prophet who will say, in any particular case, that the obvious warning which effusion gives may safely be ignored, and that the patient's "agony of mind" (if that is a reasonable term) is not simply being deferred till it is too late to be alleviated? The pathologists are now coming down very decisively in favour of the "tuberculous outlook" in every one of these cases. Clinicians with large experience are more convinced even than the statistics suggest. Without presuming to rank myself among the clinicians with an exceptional store of experience, I may say that in the county of Gloucester I have seen enough, in the past seventeen years, to enable me to speak with conviction, if not with authority. Scores of times have I seen patients who gave a history of an attack of pleurisy with effusion for which they were kept off work for only a very limited number of weeks, and when I examined them I found active pulmonary tuberculosis with tubercle bacilli in the sputum, and a prognosis varying from "moderate" to "extremely bad." In the hundred beds at Standish House for adult pulmonary cases there were last month twenty-seven patients whose illness had been associated with effusion. A number of those patients had undoubtedly missed, owing to neglected effusions, the most favourable opportunity for treatment, and some tragic after-histories might have been avoided had this sign of tuberculosis received due consideration at the proper time. In my opinion a diagnosis of idiopathic pleural effusion is in fact a diagnosis of pulmonary tuberculosis, in the Ministry of Health classification, and the practitioner ought to recognize it as such, and notify accordingly.

What of the effusions which are not diagnosed? It must not be imagined that these are few and far between. Every year I see large numbers of them. The chief pitfall in diagnosis, when the patient is really examined, is the old and erroneous belief, which still unaccountably persists, that breath sounds are invariably absent over an effusion. All that can be said about breath sounds in this condition (and it is not particularly useful) is that they may be absent, or weak, or altered. The stethoscope, in fact, is frequently more misleading than helpful. There are no physical signs pathognomonic of fluid; they may all be found in other conditions. It is quite a common mistake for a doctor to think he cannot be dealing with an effusion because he hears loud bronchial breathing over the dull area. If, in addition, he discovers whispering pectoriloquy, he then feels confident that there is consolidated lung plus a cavity. Yet exquisitely pure whispering pectoriloquy may be heard over an effusion, and bronchial breathing is about as commonly present as absent. The golden rule is: when in any doubt, put in a needle. This is a procedure which ought to be practically painless if it is properly done. The common faults are: (*a*) the use of a blunt needle; (*b*) the use of a defective syringe; (*c*) absence of local anaesthesia, especially of the pleura; (*d*) want of care in determining a rib interspace; (*e*) the use of too short or too fine a needle. It is truly surprising to see how often a rib is fouled in putting a small needle into the pleura. A frequent source of failure is to locate an interspace with the point of a finger, and then go about an inch wide horizontally, forgetting the angle at which the ribs run, and inevitably hitting bone.

The ideal procedure is somewhat as follows:

The skin is well painted with tincture of iodine or collosol iodine over the dull area, usually just below the angle of the scapula or in the fifth or sixth space in the axillary line. A fine needle is fitted to the syringe, which is filled with sterile 2 per cent. novocain solution. Two fingers are used to define the intercostal space, and between them a bleb is produced by intradermal injection of novocain. A larger needle is then fitted to the syringe and pushed vertically and slowly through the bleb and the insensitive intercostal muscles, the patient being asked to say whenever any sensation is felt; this indicates proximity to the pleura. The remainder of the novocain is then used to infiltrate the pleura, the cavity is entered, the piston is withdrawn, and the syringe fills with fluid. The needle should be sufficiently long to avoid driving it up to the hilt, as that is where needles tend to break, a troublesome complication. If the syringe draws blank, then either the dullness is not due to fluid, or there is pus too thick for the needle. In the latter case, a really stout needle should be passed along the anaesthetized tract (this will be painless), and if pus is present it should be found.

Treatment.

Let us suppose first that a clear exudate has been withdrawn into the syringe. What is to follow in the way of treatment? The patient should be kept in bed until all constitutional symptoms have passed and the morning and evening temperature has been normal for at least a week. A properly kept chart is of the greatest importance. This will mean, on an average, rest in bed for three or four weeks. The fluid itself, if at all possible, should be left severely alone. The only legitimate indication for simple aspiration is distress due to the bulk of fluid, which is, as in the case of the transudate, a purely mechanical consideration. Here, however, we have not a failing heart to contend with. All other indications, all warnings as to remote consequences, should be disregarded. It is surprising how little distress a really large effusion sometimes produces. Fluid right up to the clavicle may not inconvenience the patient to any extent, and, moreover, may spontaneously disappear in three or four weeks. Interference frequently does harm; imagine what happens inside a chest when a large effusion is rapidly withdrawn by a Potain's aspirator, the bottle being kept as near a vacuum as enthusiastic pumping can make it, the fluid discharging with an obscuring froth full bore into the container. We have all participated in such a scene. Meanwhile, a high negative pressure is being induced inside the pleural cavity, followed by a rapid expansion of diseased lung, and a quick change from the lymphatic stasis of collapse to the flooding of the lung tissues with fluid. Apart from the risk of pain, syncope, and even of sudden death, the risk of dissemination of disease of the lung is far from negligible. I will not complicate matters by describing the replacement of fluid by air, a valuable procedure, as this is very rarely done in general practice. Should simple aspiration be resorted to, it is best not to withdraw more than about a pint at a time, and the actual withdrawal should occupy ten minutes. Some people advocate injecting a little of the exudate into the patient's own tissues, a species of autoserotherapy. Considerable benefit has been claimed for it, but I should not recommend it, as the essential precautions are difficult of fulfilment.

The point in treatment which I wish to emphasize above all else is the recognition that primary clear pleural effusion is tuberculous, and that to allow a patient to resume his ordinary work in a few weeks, as is often done, is a dereliction of duty on the part of the practitioner. There is presented to us in this condition an opportunity of treating early pulmonary tuberculosis, and for the usual type of patient sanatorium treatment offers the only hope of carrying out the necessary disciplined life for the requisite length of time. Objection will almost certainly be raised to this course, and unless the position is rationally explained to the patient his co-operation can hardly be expected. If a patient cannot or will not enter a sanatorium, then a careful routine should be laid down for him for a period of three to six months after his effusion. His normal activities should not be resumed within the period.

THICK EFFUSIONS.

Pathological curiosities such as chylous fluids will not be considered. Only two varieties of thick effusion need be mentioned: (*a*) the haemorrhagic, and (*b*) the purulent.

The Haemorrhagic Effusion.

The haemorrhagic effusion does not require much comment. It is said to point to the presence of new growth, but blood is not infrequent in tuberculous effusion. The diagnosis cannot be made from the effusion alone; it must be established by further investigation, which is beyond the scope of this paper. The point to remember is that blood in an effusion has no real diagnostic significance.

The Purulent Effusion.

When pus is found, the diagnosis in one important sense is finally settled. It cannot be too often insisted on that if there is any reason to suspect pus in the pleural cavity, the sole method of diagnosis worth speaking about is the use—and, if necessary, the repeated use—of the exploring needle. All clinical criteria, all other methods of diagnosis, including *x* rays, however useful they may be, are in comparison merely guesswork. As a rule, when a practitioner finds pus in a chest the first person he thinks of is the surgeon. He is quite wrong. It ought to be the pathologist. The immediate and overriding requirement is to establish the identity of the organism responsible for the pus, as everything in treatment depends upon this. A list of pyogenic organisms which may be found can be seen in any textbook. The list is long, exhaustive, and confusing. Amid this welter of possibilities the general practitioner has to think only of three which are of essential significance—namely, the pneumococcus, the streptococcus, and the tubercle bacillus. The first two are found in acute conditions, often with life actually in the balance, when a wrong move may turn the scale. Clarity of mind and of knowledge is here of the first importance. Should a pathologist not be available (and there must be few cases where he is not) then the differentiation between these two has to be made on clinical grounds.

Taking first the pneumococcal group; if, in a case of lobar pneumonia the crisis has occurred but the pulse rate continues high, suspicion should immediately be aroused as to the development of an empyema. The physical signs may suggest that the pneumonia has not resolved, but in the presence of a high pulse rate after the crisis the exploring needle should be used as a matter of routine. When pus is found it is of a thick, creamy consistence.

Very different are the conditions in a streptococcal broncho-pneumonia. Here there is commonly an exudate in the first week of the pneumonic process. This exudate is abundant, and is free in the pleural cavity; there are no adhesions. The exploring needle withdraws thin, cloudy pus, not in the least like the "laudable pus" of a pneumococcal case. The two types require treatment which is radically different, although immediate operation is sometimes the only treatment considered. Osler wrote in his textbook: "It is sad to think of the number of lives which are sacrificed annually by the failure to recognize that empyema should be treated as an ordinary abscess, by free incision." Doubtless this lament was justified at the time it was written, applying, as it presumably did, to pneumococcal cases. But, unfortunately, the advice to treat empyema as an ordinary abscess by free incision has been applied indiscriminately to all types of cases. Pus in the chest is obviously quite different from an ordinary abscess. Immediate operation, whenever pus was found, was the rule in the American training camps during the war. In one camp, out of eighty-five consecutive cases, the mortality was 84 per cent. The average mortality was 48 per cent.—this in young men. These were streptococcal cases. Owing to the work of the American Empyema Commission, which assumed responsibility for treatment in three camps, the mortality rate fell to 4 per cent. And the essential change they introduced was staying the hand of the surgeon. As they themselves point out, the chief danger to be feared in streptococcal cases is premature and meddlesome surgery. The modern point of view was admirably stated by Tudor Edwards, opening a discussion at the Medical Society of London two years ago. He said: "It should be recognized at the outset that the treatment of empyema should never be regarded as an emergency requiring immediate operative intervention." To paraphrase Osler's phrase, it is sad to think of the number of lives which are sacrificed annually because this lesson is not fully appreciated. The critical question in connexion with operation is, Has the pneumonia subsided? Till this can be answered in the affirmative, open operation should be deferred. The pneumococcal empyema, with its creamy yellow pus, found about four weeks after the onset of the illness, should be handed over to the surgeon at once for adequate drainage, which usually means resection of a rib under a local anaesthetic. The streptococcal cases must on no account be operated on at once, or the chances of recovery are immediately reduced. The pus must be aspirated as required to reduce pressure, over a period of about three weeks, until it becomes frankly purulent and adhesions have formed. By that time the pneumonia has subsided, and the case is ready for the surgeon.

A few months ago I was asked to see a schoolboy of 10, where the anomalous physical signs had raised the suspicion of acute tuberculosis. The boy was gravely ill with a streptococcal pneumonia, and repeated aspiration was carried out till the fourth week, when a rib was resected, and all went well. Had this been done whenever pus was found, I have no hesitation in saying that the boy would have died. Sometimes the pus is absorbed completely, if by accident or design it is not removed. Last year I saw a case which I am convinced belonged to this small group. The patient was a boy, aged 6, whose father had died from tuberculosis. He had been examined several times, as he looked thin and white, but nothing had been found except a few small cervical glands, which were of no special moment. In May, 1929, this boy was stricken with an acute illness diagnosed as broncho-pneumonia, and was removed to the local hospital. For three days his temperature was over 104° F. It then came down somewhat, but there was no sign of the pulmonary condition clearing up, and on the thirteenth day of the illness an *x*-ray film was taken, which showed an almost uniform opacity over the left lung. (Plate, Fig. 1.) I heard of all this from the boy's doctor about a month after the illness began. He kindly sent me notes of the clinical condition, and also the *x*-ray film. His notes read: "Temperature now swinging to 101° F. at night, normal in the morning; night sweats; dullness up to spine of scapula on left side; bronchial breathing with some crepitations over same area." He added that, in view of the family history and physical signs, he felt sure the condition was tuberculous. I replied that the film did not suggest acute tuberculosis of the lung, and advised putting in a needle. I saw the boy some time afterwards. In the interval a second *x*-ray film had been taken which opened a "fluid level" in his left chest. When I saw him his evening temperature was 103° F. He looked very white and ill. There was still dullness on the left side, from the base to the spine of the scapula, with patches of loud bronchial breathing and numerous coarse crepitations in the upper third of the left lung. I was told that the chest had been explored three times, with a negative result. Being naturally loath to add anything, however trivial, to the distress of a child already somewhat exhausted by the examination, but, it must be confessed, rather against my better judgement, I accepted this as excluding the possibility of pus, and, as the only reasonable

alternative, committed myself to a diagnosis of acute tubercle, with a hopeless prognosis. In spite of this the child persisted in slowly recovering, and a month ago the last *x*-ray film showed that everything had cleared up, except for some thickened pleura in the middle of the left lung. (Plate, Fig. 2.) The patient is looking well, and there are no physical signs in the chest.

Cases of missed empyema are, I believe, not so rare as we might expect. As in the case just related, the long-drawn-out nature of the illness, the loss of weight, the pallor, and profuse sweating, may lead to an erroneous diagnosis of tubercle. I see them occasionally.

Recently I examined a boy of 12 who had been ill many weeks with these symptoms. There was dullness and bronchial breathing over most of one lung. I put in a needle and found pus, which was up to the second rib. This boy was operated on next day, and did very well.

I was once asked to see a young man, said to be dying of tuberculosis, as it was thought a second opinion might be a comfort to the relatives. I was told of the long illness, the wasting, the drenching night sweats, and the physical signs, which put the diagnosis beyond all doubt. He was not expected to live for more than twenty-four hours. When I visited him I was surprised to see him lying so quietly, as distressing dyspnoea had been described to me as a marked symptom. I then learned that during the previous night the shortness of breath had become extreme, leading to partial unconsciousness and such violent struggling that it took three men to hold the patient in bed. In the throes of this struggle suddenly there was a report audible to all in the room; the patient's chest had burst, and pints of pus were ejected as from a hose, with immediate relief. Certainly I saw the wall splashed by pus 4 feet from the floor at a distance of 6 feet from the bed. There was a circular opening, about the size of a shilling, in the third right interspace in front, leading to the pleural cavity. The subsequent operation was entirely successful.

The remaining group of cases, that involving the tubercle bacillus, is not one with which, as a rule, the general practitioner has much to do, unless he has a patient for whom some optimistic surgeon has resected a rib. As the sinus will discharge for the rest of the patient's life, he will see quite plenty of it.

Conclusions.

1. Do not be misled by physical signs.
2. In cases of *any* doubt use the exploring needle.
3. Remember that primary clear effusion is tuberculous.
4. When pus is found, open operation should not be countenanced till the lung process has subsided. This means, in pneumococcal cases, after the crisis; in streptococcal cases, three weeks or more from the onset of the illness; and in tuberculous cases, never.

TREATMENT OF LYMPHATIC GLANDS IN CARCINOMA OF THE CERVIX UTERI.*

BY

MALCOLM DONALDSON, M.B., F.R.C.S.,

PHYSICIAN ACCOUCHEUR, WITH CHARGE OF OUT-PATIENTS, ST. BARTHOLOMEW'S HOSPITAL.

In the majority of cases of malignant disease the problem of the surgeon is how to treat metastases, and it is as well to consider why these distant growths should be so much more difficult to deal with than the original tumour.

The destruction of the original tumour by means of excision or cautery dates back thousands of years; all the advance made on the surgical side has been concerned with a better treatment of metastases. When it was realized that carcinoma tended to spread by lymphatic drainage, operations were devised to remove all the lymphatic glands and vessels which drained that area. This increased the severity of the operation very considerably, and the high primary mortality in many cases, such as Wertheim's operation, was due to the greater shock, the risk of haemorrhage, and the increased possibility of sepsis in such a large area of disturbed tissue.

When radiotherapy first came into use, and it was found possible to heal the primary growth, it appeared likely that the lymphatic areas would be dealt with far more satisfactorily than by excision. Unfortunately, this has not so far proved to be the case, and the reason is by no means clear.

The most likely cause appeared to be insufficient irradiation. In many cases the glands are situated further from the surface, and they are therefore undoubtedly more difficult to irradiate with adequate intensity, but it is equally true that in other cases—for example, the lymphatics of the neck—the glands are, comparatively speaking, superficial, and no such difficulty exists. Accumulating experience would seem to indicate that the metastases are more radio-resistant than the primary growth.

In a bacterial infection we know that the glands do much in preventing the spread of the disease. The organisms have to pass through a cordon of glands before getting to the rest of the body, and, as a rule, those glands deal with the invaders very successfully. The idea that the glands act in the same way in malignant disease is at first sight a tempting one, but is it not possible that the glands in the case of neoplasm act in the very opposite manner—namely, by forming a centre in which the malignant cells can grow more readily? If the malignant cells which wander from the original tumour had the same opportunity of growth as in the glands, should we not find large masses in the tissues all the way along to the glands? If microscopic sections are taken of the area between the original tumour and the lymphatic gland, the lymphatic vessels will very often be found to be completely blocked by cells, but it is not until the glands are reached that large masses of cancer are found. It seems obvious, therefore, that the cells which are waylaid on their journey from the tumour do not have the same power of division and growth as those at a distance—namely, in the lymphatic glands. This can only mean that either the body has a resistance to the neoplastic cells in the intervening space, or that there are factors in the glands which actually encourage growth. The latter hypothesis is suggested at least by the fact that a tonsillar extract has a definite growth-promoting substance for tissue culture, and that tonsillar growths are very radio-resistant.

So far we have considered only the question of cell growth. There is, however, another aspect of the case that must be considered—whether the cells in these special positions are more radio-resistant. Here we are faced with the problem whether the action of radiotherapy is a direct or an indirect one. If we think of radio-action as being purely direct, then it is only possible to think of the individual cell as being more resistant. There is, however, a growing suspicion that the disappearance of growth in the body is not mainly direct action, but to a very large extent indirect action through the changes brought about in the surrounding cells. If this is true, then it may well be that the changes in the glandular tissue are far less than those in the other tissues of the body, and therefore the action on the malignant cell is less intense.

It is not difficult to suggest experiments that might help to throw light on this subject—for instance, the direct implantation of tumours into glands before and after irradiation. It has, of course, been shown by Murphy and others that implanted tumours do not take so well in an area that has been previously irradiated, but I know of no experiments in which a comparison has been made between the effects of inoculating an irradiated gland and of inoculating a gland with an irradiated tumour, the dose of irradiation being the same in both cases. The mere fact that a previously irradiated area prevents an inoculated tumour from taking may prove to be of great significance in early cases of malignant disease. It will perhaps be found that, by a prophylactic irradiation of the glands, cells will be unable to settle down and grow as effectively as they otherwise might.

It is perhaps presumptuous for a mere clinician to try to discuss these biological problems of radio-sensitivity; the most we can do is to try out various techniques by which the infected lymphatic areas can be better irradiated, and experiment with various doses.

One of the earliest types of malignant disease to be successfully treated by irradiation was carcinoma of the cervix uteri. In early days the treatment was somewhat crude, but in spite of this fact good results were obtained locally. At the present time there are several different

* Read in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

techniques used in the vaginal application, and it can be said that any one of these will get rid of the growth in the cervix and vagina.

It is possible that in some of the techniques the area irradiated is rather more extensive than others, but in no case can sufficient irradiation be applied per vaginam efficiently to deal with the glands far back in the pelvis—for example, near the bifurcation of the iliac artery. Of recent years the problem of glandular metastases in cases of carcinoma of the cervix has been approached by means of *x*-ray therapy. This combined method is extensively used in the Radium Institute in Paris and in many other centres. We at St. Bartholomew's are doing two series of such cases, one by means of radium plus *x* rays, and the other by means of vaginal application of radium and intra-abdominal radium.

It was in 1919 at the Brussels Radium Institute that the first attempts at intra-abdominal radium were made; briefly the technique used was as follows. After placing the patient in the Trendelenburg position, the abdomen was opened and examination made of the pelvis. Next, an incision was made at the base of each broad ligament, and a tube of radium, containing 10 mg. of radium element screened with the equivalent of 1 mm. of platinum plus rubber, was placed in each broad ligament; in addition, three or more needles were placed through the lower end of the uterus. The ligatures from these containers were brought out through the abdominal wall at the lower end of the incision; the whole pelvis was then packed with six to eight yards of gauze, and the end of this gauze left hanging from the wound, together with the sutures. The abdomen was then closed, except for the place occupied by the sutures and tag of gauze. After a lapse of four or five days the gauze was pulled out, likewise the containers.

During 1923-24 the author used a modification of this technique in thirteen cases. In his experience it seemed to give rise to a rather severe peritoneal reaction, and for a time it was abandoned. An examination of the figures, however, revealed the fact that seven of the thirteen had lived for a period of five years or more, although two of these have recently died. It was therefore decided once more to try intra-abdominal irradiation, but to modify the technique. This has now been done as follows. At least six weeks are allowed to elapse after the vaginal treatment, so as to allow the cervix and vagina to heal before irradiating the pelvis. The abdomen is then opened with the patient in the Trendelenburg position, and a careful examination made, not only of the pelvis, but of the aortic glands and liver; if these are involved it is obviously useless to proceed further. If the pelvic glands alone are involved, or even if there seems to be no glandular involvement, twenty radium needles are placed right round the pelvis. Each of these needles contains 2 milligrams distributed over an active length of 32 millimetres; the walls of the needles are 0.5 mm. of platinum. The uterus is held well forward, and, starting at one sacro-iliac synchondrosis, the parietal peritoneum is picked up with forceps and the needle inserted as far as the eye just under the peritoneum. The next needle is placed about one centimetre from the first, until the outer border of the uterus is reached. This generally involves the use of five or six needles; sometimes an extra needle is placed deeper in Douglas's pouch, so as to irradiate the utero-sacral fold and the tissues lying below it. The same operation is carried out on the opposite side of the pelvis. Each needle is provided with a strong silk suture and a coloured glass bead, which is passed along the suture close to the eye of the needle. The glass bead serves two purposes: first, it prevents the suture from cutting through the thin peritoneum; secondly, it is very useful in finding the needles when removing them later. When the needles are in position all the sutures on one side of the pelvis are tied together, and their ends pushed down into the pouch of Douglas. The uterus is then allowed to fall back into the pelvis, and three or four needles are placed in front of the broad ligament (again subperitoneal, except for the eye and the bead), in order to irradiate the obturator glands. These sutures are likewise tied together, and allowed to fall down in front of the uterus. The abdomen is then completely closed for seven days. At the end of that time it is again opened to remove the needles, and then closed.

Dodd of the Westminster Hospital avoids the second laparotomy by putting the sutures through the abdominal wall, each suture being covered by a tube; in addition, I understand, he generally removes any palpable glands.

Other techniques of irradiating the glands have been suggested; for instance, Professor Daels of Ghent described a method by which an extraperitoneal channel was made reaching from the anterior superior iliac spine to the ischio-rectal fossa on the same side. A tube of radium attached to a chain was then drawn along this channel.

Results of Intra-abdominal Irradiation.

The immediate results of the intra-abdominal irradiation as practised by the author are really very satisfactory. At first sight the idea of opening the abdomen twice within a week is rather startling, but it is surprising how little shock the patient experiences; as a rule the wound heals by first intention. Obviously it is an operation which cannot be performed on very feeble elderly patients, or if, on opening the abdomen, the pelvis is found to be full of adhesions.

The results from point of survival rate are as follows:

Patients Treated with Intra-abdominal Irradiation.

Degree	Name.	First Treated.	Died. Period Survived.		Living.	
			Years.	Months.	Years.	Months.
2	A. D.	12/12/23		10		
2	K. H.	25/10/23	5	7		
4	A. A.	16/1/24			6	6
2	B. M.	23/1/24			6	6
3	A. H.	12/2/24		9		
2	E. P.	26/3/24		7		
3	E. W.	2/2/24		11		
4	C. McC.	10/4/24	1	10		
3	H. N.	23/4/24			6	3
3	M. B.	3/7/24			6	—
3	G. B.	—/9/24	6	—		
1	V. S.	5/3/25			5	4
3	M. M.	11/3/27	1	4		
1	M. I.	5/8/26			3	11
		New Method.				
4	M. H.	2/6/27	1	1		
2	M. B.	20/9/27			2	11
1	E. G.	22/3/28			2	4
3	K. L.	26/1/28			2	6
4	A. D.	11/2/28	1	—		
4	A. G.	8/3/28		2		
4	B. B.	19/4/28			2	3
1	E. N.	—/4/28		10		
2	F. D.	21/5/28	1	9		
2	A. G.	3?/5/28			2	2
1	F. H.	8/6/28			2	1
4	F. O.	28/7/28			2	—
3	B. H.	10/9/28	1	—		
1	M. W.	29/?/28			2	4
3	E. W.	8/11/28			1	8
1	E. B.	3/1/29			1	6
4	M. P.	14/2/29	1	1		
2	B. P.	6/12/28			1	7
4	S. J.	28/2/29			1	5
4	K. C.	30/4/29			1	3
2	A. E.	6/6/29			1	1
1	E. W.	22/1?/28			1	9
2	M. P.	29/11/29				8
3	F. A.	17/11/29				8

It is evident from the above table that sufficient time has not elapsed, and that the number of cases is insufficient to justify any conclusions whether this method of irradiating the glands will increase the five-year survival rate, but the immediate results are satisfactory enough to encourage the author to persevere with this method.

APPENDIX CONCRETIONS OPAQUE TO X RAYS.

BY

C. ALEX. WELLS, M.B., CH.B., F.R.C.S.,

ASSISTANT SURGEON, ROYAL SOUTHERN HOSPITAL, LIVERPOOL.

(*With Special Plate.*)

A CONDITION to which very little attention has been directed in standard literature is that of appendicular concretions opaque to *x* rays, and large concretions in the appendix in general. Several points of very real interest to the surgeon are involved, and the case described here is sufficiently graphic to attract attention, first, as to the possible errors in pre-operative diagnosis arising from this cause, secondly, as to the embarrassment which may arise at operation, more particularly in an acute case, if we are not alive to the possibility of the occurrence of a really large appendicular concretion, and lastly, the troublesome sequelae which may be occasioned.

Case Report.

In April, 1929, a man, aged 39, was admitted to the Royal Southern Hospital in a condition typical of acute appendicitis with abscess formation. He stated that up to within a week of admission he had been perfectly well, when he had begun to feel pain in his right iliac fossa, which had, however, not prevented his working until twenty-four hours before his coming in, when it became very severe, and he vomited several times. An appendix abscess was obvious, and this was drained, with the escape of a concretion. The following day there came from the wound a calculus, the nature of which was not immediately recognized, the possibility of renal or biliary origin being entertained. This stone was analysed, and reported to contain calcium and magnesium phosphate, a slight trace of iron, a small amount of fibrin, and no bile pigments or salts. The pathologist remarked that it was of a very hard nature. As the wound failed to clean up in the usual time, lipiodol was injected up the sinus and a stereoscopic radiogram made, which demonstrated a track leading to a large round shadow, rather mottled in character. This was interpreted as a calcified gland acting as a foreign body in an abscess cavity, and exploration was decided upon. After a tedious dissection, a stone was disclosed lying in the lumen of the appendix, which was quite clearly traced in its entire length. The lumen at the centre was distended into a large bulbous swelling surrounding the calculus, which was removed from a cavity completely lined with mucous membrane. The appendix was then removed, its outer coats being densely adherent, but healing was rapid and uneventful.

Description of the Calculus.

In size, shape, and surface the calculus very closely resembled a walnut. It was a deep red-brown colour and extremely hard. On being cut across, the outermost shell only was found to be of this extremely hard consistency. Just within this layer was a second lamina of mineral salts slightly less hard, and the centre of the stone was occupied by a very much softer structureless mass. The hospital laboratory reported that the nucleus was composed of an amorphous debris most probably faecal in origin. The middle layer contained carbonate and phosphate of calcium and magnesium, the carbonate appearing to predominate. The outermost layer of all was composed almost wholly of triple phosphate with some calcium carbonate and earthy phosphate. Other writers have reported a similar composition[1 2] and formation.[3]

Origin of these Calculi.

From this description it would seem clear that the stones in this instance were derived from local faecal accretions in the appendix. This method of origin appears to be the common one, although foreign bodies[4] have been described forming the nucleus, and the question has been raised[5] as to the possibility of gall-stones finding their way to this position. Only one case is described in the article quoted, and this contained very many small faceted calculi about 2 mm. in diameter, containing calcium phosphate and organic matter, but no cholesterol, bile salts, or pigments. The writer quotes Howard Kelly[6] and McAdam Eccles[7] as subscribing to the belief that the majority of these bodies are faecaliths formed *in situ* and not gall-stones. In one interesting case[8] the calculus was formed chiefly of bismuth, which was traced to a bismuth meal taken by the patient for *x*-ray purposes two years previously. This stone measured 4½ by 1½ cm. O. T. Williams[22] was struck by the observation that appendix concretions are commonly larger than the normal appendix lumen, and infers from this that they probably grow *in situ* as the result of salts being deposited on their periphery by the mucous membrane, the fact of the excretion of inorganic salts by the intestinal mucosa being recognized. He found support for this suggestion in the disproportionately large amount of calcium present in appendix concretions compared with enteroliths in general. He further found an increased quantity of fats, and suggested that the calcium occurred as a soap. Maver and Wells[23] agree that, as compared with enteroliths, concretions found in the appendix contain an excess of fats and of calcium, and support the suggestion that these are derived from the mucous membrane of the appendix itself, but they do not agree that the bulk of the calcium occurs as a soap.

DISCUSSION.

In the journals of the last twenty years references to this condition are sufficiently plentiful to make it abundantly clear that its interest is far from being purely academic, and is, in fact, of a highly practical nature.

Diagnosis: General Characteristics.—The *x*-ray appearance will, in most cases, be that of an irregularly calcified mass—that is, mottled. In the example quoted, the centre was faecal and the salts were deposited in the periphery, but the shadow was not particularly annular in form, and reference to the cases in the literature confirms the suggestion that this characteristic is not usually present. Although calcified chiefly in their outermost portions, appendicular calculi do not throw a ring shadow. Such a shadow has, however, been described with multiple nuclei. Gottschlich[2] and Fittig[10] describe lamination. In this case the shadow is roughly circular in outline, and this appears to be the common form. Fusiform shadows are not described as a rule. Multiple shadows may occur; they are neither the rule nor the exception. When present, facets are found between opposed surfaces.[1] The largest number of calculi removed is reported as four, of which the biggest measured 2 by 1.5 by 1 cm.[11] Demonstrable movement of the shadow will depend upon the degree of inflammatory fixation, and must surely be limited as a rule. In practically all circumstances the respiratory excursion will be negligible. The size of the shadow is surprising. In the case described it measured 3.25 by 2.25 cm., and other instances have been recorded where the stones measured 2 by 1½ cm.,[12] 4½ by 1½ cm.,[8] and 2½ by 3 cm.[13] One observer reports his case as "unique in the annals of surgery." The appendix contained two tapering concretions measuring respectively 1.5 by 6 cm. and 4 by 1 cm.[14] The pre-operative recognition of these stones seems to have been peculiarly rare. Writing in 1915 Pfahler and Stamin[12] state that they were able to trace only one case which had been correctly diagnosed before operation, this one having been discovered by Weisflog in 1906, when two stones were found in the appendix in the course of a radiological examination for ureteric calculi. Case, at Detroit, in 1916, reported two cases correctly diagnosed by *x* rays. In many of the cases reported there was an abscess formed in relation to the appendix, and a concretion lying free in the cavity.[12 13] J. B. Murphy[15] indicates the danger of all concretions in

the appendix causing sudden perforation without premonitory symptoms and producing an immediate acute peritonitis.

Differential Diagnosis from Urinary Stones.—The general characteristics just outlined should be sufficient to distinguish in most instances between an appendicular calculus on the one hand and a renal or ureteric calculus on the other. A shadow thought to be in the kidney should move on respiration and be shown in quite different positions in two photographs taken at the height of inspiration and of expiration, whilst if doubt should still exist a pyelogram should be sufficient to clear it up. A shadow thought to be a stone in the ureter should again present very little difficulty in the majority of cases. Such stones are almost constantly fusiform in shape, except when of very small size, and again, except when very small, throw a uniform or a uniformly laminated dense shadow. An opaque bougie passed up the ureter will demonstrate the relationship of the shadow to that structure. It is perhaps permissible at this point to urge the use of a stereoscopic *x* ray if recourse be had to opaque catheterization. The one-dimensional picture is of use if the two shadows lie well apart, but may be misleading if they should be superimposed. Douglas and Lewald[12] in their paper say that in one of their cases the stone, after removal, had an *x*-ray density equivalent to that of a ureteric calculus, whilst instructive errors of diagnosis are reported among others by Hunner,[12] Seelig,[16] and Eastmond.[17] The last two writers each describe independently a case of ureteric obstruction caused by an adherent appendix containing a concretion resembling a ureteric calculus. In one of these cases an opaque catheter was passed and the error was confirmed by its being arrested at the point of adherence. It is quite rightly emphasized that a single *x* ray in such a case gives insufficient information. Radiograms must be made either stereoscopically or by lateral photography. Another writer[18] describes a similar instance of careful investigation leading to a faulty conclusion. He draws attention to the frequent mistake of removing the appendix for a pain of renal or ureteric origin, and describes an instance of the reverse error. Two fairly uniform shadows, well illustrated in the article, were observed in the line of the ureter; an opaque bougie was passed, and, whilst the stones were not actually touching it, they were seen to lie at only a short distance from it and to move when the bougie was moved. Opaque fluid was then injected into the ureter, which was found to be dilated, and this larger shadow overlay the stone shadows. The diagnosis of ureteric calculi was considered complete and operation embarked upon, resulting in the discovery of the appendix lying on the posterior parietal peritoneum adherent to the ureter and containing two stones. In commenting on this particular instance of mistake in diagnosis there would appear to be two points which might be criticized. First, the excretory function of the kidney does not seem to have been compared with that of its fellow, and secondly, it seems probable that a stereoscopic *x* ray following injection of the ureter would have obviated the mistake which, however, it must be conceded, was a very natural one in the circumstances.

Differential Diagnosis from Gall-stones.—This problem does not appear to have arisen very frequently, no doubt because it presupposes an abnormal situation for either the gall-bladder or the appendix. One most instructive case may be quoted.[19] Two large concretions were seen throwing good shadows below and to the right of the tip of the twelfth rib. The case was primarily believed to be one of gall-stones, and was finally operated upon as such, but not before a full urological investigation had been undertaken. An *x* ray showed an opaque catheter lying with its tip in contact with the shadows, and the urologists were satisfied that these were of kidney origin. It is worthy of note, again, that the photographs were not stereoscopic. However, the bulk of opinion was in favour of gall-stones, and a laparotomy was performed. The appendix was removed, having been found fixed high up behind the colon and containing in its tip the two stones. The position of stones in the biliary apparatus is far from constant, so that this error is one apt to recur, but at the present day it should be avoidable with the aid of cholecystography. Further, whilst most gall-stones throw no shadow, such shadows as are thrown are most usually annular. None the less it is true that a group formed of a large number of very small opaque gall-stones does throw a mottled shadow, which is not characteristic of gall-stones in general.

Differential Diagnosis from Mesenteric Glands.—Curiously enough, this does not seem to have been very seriously entertained by the majority of writers consulted. In one's own case one thought the most probable explanation of the shadow was that the appendix abscess had led to the exposure of a mass of calcified mesenteric glands, and these were acting as a foreign body preventing the cessation of the discharge. It is possible that had a bismuth meal been given, one might have been able to demonstrate that the stone was lying in the appendix, but it seems more likely that such an attempt would have failed. Considering the question broadly, it would appear that the differential diagnosis must depend upon (*a*) the characteristics of the shadow, (*b*) its degree of motility, and (*c*) its possible relation to a bismuth meal, following preliminary measures, if indicated, to exclude urinary and biliary origin. Ordinarily, of course, the less opaque concretions commonly found in the appendix cause a filling defect in the appendix shadow. Kleeblatt[20] suggests air inflation of the colon in doubtful cases, and Hurter[21] a barium enema.

SUMMARY.

A case is described of a large stone in the appendix opaque to *x* rays.

The origin and surgical significance of such bodies is discussed.

The diagnosis is discussed and the differential diagnosis from urinary stones, gall-stones, and calcified glands is considered in some detail.

Such cases as could be traced in the literature and which bear on the subject are described.

For his help and permission to publish this account I am much indebted to Mr. John T. Morrison, in whose absence this case came under my care.

REFERENCES.

1 Wassertrudinger, O.: Calculi in Appendix, *Zentralbl. f. Chir.*, 1925, ii, 2123.
2 Gottschlich: Abnorme Formen von Appendixsteinen, *Berl. klin. Woch.*, 1914, ii, 40.
3 Falkenstein, I.: Star-shaped Calculus in Appendix, *Zentralbl. f. Chir.*, 1923, i, 1821.
4 Métraux, A.: Calculus around Needle in Appendix, *Rev. Med. de la Suisse Romande*, 1927, xlvii, 192.
5 Barry, D. T.: Calculi in the Appendix, *Lancet*, 1907, ii, 511.
6 Howard Kelly: *The Vermiform Appendix and its Diseases.*
7 McAdam Eccles: *Lancet*, April 14th, 1903.
8 Mulleder, A.: *Zentralbl. f. Chir.*, 1923, i, 384.
9 Haas, L.: Roentgen Diagnosis of Stone in the Appendix, *Klin. Woch.*, 1928, vii, 1470.
10 Fittig, O.: Die Bedeutung der Enterolithen des Processus Vermiformis im Röntgenogramm, *Fortschr. a. d. Geb. d. Rontgenstrahlen*, 1907, xi, 356.
11 Vermooten, V.: Appendiceal Lithiasis, *Boston Med. and Surg. Journ.*, 1925, cxciii, 718.
12 Douglas, J., and Lewald, L. T.: Fecal Concretions of the Appendix Demonstrable by the Roentgen Ray, *Journ. Amer. Med. Assoc.*, 1916, lxvi, 1919; idem, *Med. Rec.*, 1916, lxxxix, 1069.
13 Jacobs: Calcul appendiculaire de 2 gr. 40 avec rupture de l'appendice, *Bull. Soc. Belge de Gynéc.*, 1909-10, xx, 114.
14 Packard, H.: Appendicular Lithiasis, *Boston Med. and Surg. Journ.*, 1921, clxxxv, 656.
15 Murphy, J. B.: Appendicial Concretion producing Ulceration, Perforation, and Acute Peritonitis; Gangrene of Cæcum; Post-operative Fecal Fistula; Operative Relief, *Surg. Clin.*, 1915, iv, 28.
16 Seelig: *Surg., Gynecol. and Obstet.*, 1918, xvii, 485 (quoted by Douglas and Lewald).
17 Eastmond: *New York Roentgen Ray Soc.*, February 21st, 1916 (quoted by Douglas and Lewald).
18 Mark, E. G.: Appendical Concretions Simulating Ureteral Calculi, *Journ. Amer. Med. Assoc.*, 1924, lxxxii, 1689.
19 Albert, S.: Appendiceal Stones Simulating Gallstones and Kidney Stones, *Radiology*, 1925, iv, 428.
20 Kleeblatt, F.: Roentgenography and Stones of Appendix, *Munch. med. Woch.*, 1920, lxvii, 1289.
21 Hurter, J.: Zur Röntgendiagnose von Kotsteinen im Processus vermiformis, *Zeit. f. Röntgenk. u. Radiumforsch.*, 1910, xii, 401.
22 Williams, Owen T.: *British Medical Journal*, July 27th, 1907.
23 Maver, Mary E., and Wells, H. G.: The Composition of Appendical Concretions, *Archives of Surgery*, 1921, iii, 439.

A CASE OF HUMAN INTESTINAL MYIASIS.

BY

J. F. D. SHREWSBURY, M.B., CH.B., D.P.H.,

LECTURER IN BACTERIOLOGY, UNIVERSITY OF BIRMINGHAM.

(*With Special Plate.*)

REPORTS of cases of myiasis—infestation with fly larvae—are infrequent in the medical literature of this country. Possibly the incidence of infestation is higher than the published reports suggest, especially in regard to intestinal myiasis, since in those cases in which larvae are only present in small numbers the condition may pass unrecognized.

The case here reported is that of a little girl, aged 3 years, a doctor's daughter. The child suddenly developed a mild enteritis, which began with an attack of vomiting and persisted for about a fortnight. During this period her father noticed, on two separate occasions, a single larva in her motions. Eventually, some three weeks after the onset of her illness, two more larvae were found in the chamber one morning, immediately after the child had urinated. No faeces were passed on this occasion, but, in view of the previous findings, the larvae were most probably passed per anum. There were never any symptoms of the urethral or vaginal irritation that would certainly have accompanied the presence of fly larvae in the urethra or the vagina. No more larvae were evacuated, and the child made a speedy and complete recovery from her enteritis.

The larvae were originally sent to Dr. P. C. Cloake, honorary assistant physician to the Queen's Hospital, Birmingham, who brought them to me. I, in turn, sent one larva to Major E. E. Austen, keeper of entomology, British Museum (Natural History), who identified it as the larva of the dipterous fly, *Anisopus fenestralis*, and generously gave me permission to incorporate his report, which follows:

Anisopus (*Rhyphus*) *fenestralis*, Scopoli.

"This insect breeds normally in fermenting organic matter, such as cow dung, the effluent from farmyard manure heaps, sap exuding from wounds in trees, water in tree holes, and the decaying roots of certain plants. In one instance the species was found breeding in a human liver, which had been exposed to the air after having been preserved in 10 per cent. formalin for seven years; the larvae have also occasionally been found in cider and home-made wine, and in one instance, they caused damage to the comb in a beehive. As its name implies, the adult insect, which, although quite incapable of biting, somewhat resembles a mosquito in appearance, is often to be found on the windows of living rooms."

The two larvae I received from Dr. Cloake were unequal in size, the larger one being about half as big again as its companion. The larger larva measured exactly 1 cm. in length by 0.5 mm. in breadth. The larvae were, however, identical in structure and colouring.

I am indebted to the courtesy of Mr. F. W. Edwards, Major Austen's colleague, for the following expert description, by which the larva of *Anisopus fenestralis* may be recognized.

"Complete absence of legs, but distinct brown head present. Body consisting of three thoracic segments and ten abdominal. The thoracic segments show conspicuous reddish-brown markings on the sides, and less conspicuous bands are present on the abdominal segments. The first eight abdominal segments each consist of a narrower portion at the base, divided by a suture from a larger posterior portion. The respiratory system has two pairs of openings, one on the first thoracic segment and the other at the extreme tip of the body; the latter is surrounded by five small pubescent lobes. The last two abdominal segments are small. The anus is surrounded by a plate on the eighth segment."

In human intestinal myiasis, infestation can occur apparently by one of two routes: either the ova of the offending fly are ingested and pass through the stomach unharmed, the larvae hatching out in the intestines, or the fly actually oviposits on or near the anus of an individual at stool. The ova hatch rapidly in this situation, and the larvae make their way through the anus and travel upwards into the large bowel. This path of infestation is probably not uncommon in districts where the old earth closets are still in use (Hewitt, 1912), since many of the dipterous flies that provoke myiasis are attracted to sewage and the females oviposit on faecal matter. In the case reported, however, infestation most probably resulted from ingestion of the ova. Little children frequently suck their fingers, and are also fond of rubbing their fingers up and down window panes. As Major Austen has pointed out, *Anisopus* is commonly found on the windows of living rooms, and oviposition is certain to occur occasionally on window frames when the fertilized female is unable to escape from the room to find suitable faecal or vegetable material.

Human intestinal myiasis in this country, judging from the published cases, is not apparently of grave import as a general rule. Enteritis, of a more or less serious degree, invariably accompanies the passage of the larvae through the intestinal tract, but the symptoms clear up rapidly after the larvae have been evacuated. The larvae do not appear to attack the intestinal mucosa, subsisting on the food material available in the faeces. When the larvae are present in large numbers, however, the symptoms are proportionately more severe and the patient may be seriously ill. In the adult, the passage of fly larvae per anum is at least an unpleasant, and frequently a terrifying experience, and in the published cases the psychological effect upon the adult patients is usually evident. There is, moreover, always the risk that the larvae may be carrying intestinal pathogenic bacteria, or may pave the way for an infection with such organisms.

Treatment does not seem to exert much effect upon the larvae, which leave of their own accord, per anum, when approaching maturity. The usual vermifuges are of little value, but intestinal disinfectants, mild purgatives, and high enemata may hasten their departure in certain cases.

I wish to thank Drs. W. R. Blore and P. C. Cloake for their permission to publish the clinical material, and to express my grateful appreciation of the generosity of Major Austen and Mr. Edwards in allowing me to utilize their reports.

LITERATURE.

Hewitt: "An Account of the Bionomics and the Larvae of the Flies *Fannia* (*Homalomyia*) *canicularis* L., and *F. scalaris* Fab., and their Relation to Myiasis of the Intestinal and Urinary Tracts." Reports to the Local Government Board on Public Health and Medical Subjects (New Series, No. 66). Further Reports (No. 5) on Flies as Carriers of Infection. London: H.M. Stationery Office. 1912.

"FAT NECROSIS" OF THE BREAST.

BY

H. A. COOKSON, M.B., F.R.C.S.ED.,

PATHOLOGIST, ROYAL INFIRMARY, SUNDERLAND.

(*With Special Plate.*)

DRS. LEE AND ADAIR[1] were, I believe, the first to describe this condition, in a report to the American Surgical Association in 1920, when they described two cases. The same authors reported three further cases in 1922,[2] making five in all. A sixth case was recorded by Mr. Geoffrey Keynes[3] in the *British Journal of Surgery*, 1924–25, and a seventh case was the subject of a contribution by Professor Hadfield[4] in the *British Journal of Surgery*, 1925–26. Professor Hadfield refers to Mr. Rowntree[5] as having described a case of this nature in the *Lancet* in 1925. The condition therefore appears sufficiently uncommon to be an excuse for describing another case of the condition.

Case Report.

A woman, aged 56, was admitted to the Royal Infirmary, Sunderland, complaining of a tender lump in the left breast. Eighteen months before admission she had fallen and injured the breast, and six months after her accident she had noticed a lump. This lump had recently slightly increased in size, and there was slight pain. On examination it was seen that the breasts were large and pendulous, and that there was a small nodule at the periphery in the lower and medial quadrant of the left breast. The skin was of normal appearance over the tumour, but was adherent to it. There was free movement on underlying structures, and no glands were felt in the axilla. The lump was tender on pressure, but felt firm; it was softer in the middle than at its edges. Mr. Hamilton Ross, the surgeon in charge of the case, excised the nodule by an elliptical incision and using a diathermy knife, after which the specimen was sent to the pathological department for examination.

Pathological Report.

Macroscopical Examination.—The tissue was almost entirely fatty, but there were one or two nodules showing a chalky white appearance.

Microscopical examination showed that the nodules were made up of large cells with a peculiar foaming cytoplasm; there were also large giant cells of foreign-body type. The condition showed fat phagocytosis. The breast tissue in the vicinity showed a fibroblastic reaction. The histological appearances were similar to those described by Mr. Keynes and Professor Hadfield, but were perhaps earlier in development than Mr. Keynes's case and later than Professor Hadfield's case. Although fibrosis was not advanced, it had already commenced, and the boundaries of the fat globules could be traced only with difficulty.

Photomicrographs of the condition are shown on the special plate, to which reference should be made. There is demonstrated abnormal fibrosis due, perhaps, to the trauma, and the beginning of the necrotic lesion is seen. The close relation to the skin shows why the lesion appears fixed to the skin, and so simulates malignancy.

The practical point in fat necrosis (so called) cases of the breast appears to be that this interesting condition may be mistaken for early carcinoma of the breast. The small size of the lesion, however, its superficial situation, and the absence of axillary glands are points against such a diagnosis. Usually there is a definite history of accident, the breasts are typically pendulous, and naked-eye examination shows the characteristic chalky white appearance of the nodules. Histologically the picture is highly characteristic, and I feel we are indebted to the writers referred to in this paper for placing this peculiar condition on a firm clinical and pathological basis.

I venture to suggest that instead of "fat necrosis" the condition should be called "mammary panniculitis."

REFERENCES.

[1] Lee, J. B., and Adair, F. E.: *Surg., Gynecol. and Obstet.*, 1922, xxxiv, 521.
[2] Idem: *Trans. Amer. Surg. Assoc.*, 1920, xxxviii.
[3] Keynes, G.: *Brit. Journ. of Surg.*, 1924-25, xii, 663.
[4] Hadfield, G.: Ibid., 1925-26, xiii, 742.
[5] Rowntree, C.: *Lancet*, 1925, ii, 1065.

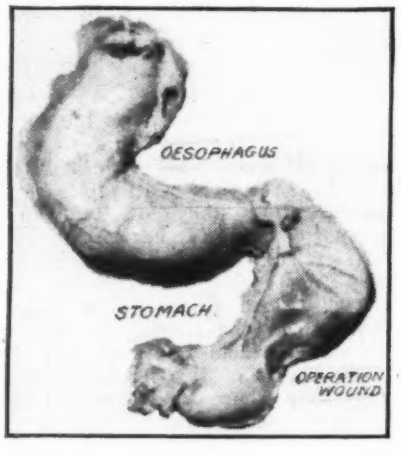
Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SPASMODIC STRICTURE OF THE OESOPHAGUS.

A PATIENT of mine, a fisherman, aged 66, complained of marked loss of weight, indigestion for many years, and constant vomiting of all food, with large quantities of mucus, for eight or nine months. Latterly this had become worse, so that he could not even keep down fluids. His food stuck at a point which seemed to correspond with the cardiac end of his stomach. On examination nothing abnormal could be felt in his abdomen, but he was remarkably thin and emaciated.

A bismuth meal revealed a peculiar large sausage-shaped shadow lying almost horizontally across the lower chest. Little or no bismuth passed beyond this shadow, and there was no irregularity at its lower end to suggest the presence of ulceration (malignant or otherwise). At first sight this shadow looked like a dilated stomach with its pylorus turned round to the left. I passed a Hurst's oesophageal bougie, however, and re-rayed, when it was



clearly seen that the shadow was an enormously dilated and markedly curved oesophagus. Attempts to dilate the stricture with bougies did no good, and the patient's condition became worse. It was therefore decided to open the stomach, and my colleague Dr. Keene did this. At the cardiac orifice he found no thickening or sign of malignancy, but there was very marked kinking, and on attempting to dilate the orifice manually a certain amount of resistance was noticed. Unfortunately the operation did not relieve the condition, and the man died three days later.

At post-mortem examination the enormously dilated oesophagus was found, but no hypertrophy of the cardiac sphincter. Obstruction was, however, still complete; even water would not pass through into the stomach. Apparently the primary condition was one of cardiac spasm or achalasia, and later complete obstruction supervened owing to the sagging of the dilated oesophagus and kinking of the lumen at the cardiac orifice.

DUDLEY W. BOSWELL, M.D., D.P.H.

Lowestoft.

CRETINISM AND MONGOLISM IN THE SAME FAMILY.

I HAVE been unable to find any record of cretinism and mongolism occurring in the same family, and the following example may therefore be worth recording.

The mother is a healthy and fairly intelligent woman, aged 40, who has been married twice. The first child of the first marriage, born when she was 27, is a mongol, now aged 13. Eight months later she was delivered of a dead foetus; "the head was very large and had to be punctured before birth." By her second marriage she had first a normal child, and then a cretin, now 6½ years old. The latter first came under my care at the age of 1½, sent by Dr. Taylor, medical officer of health for Berks. She was then a typical cretin, unable to sit up, with a large mouth, snub nose, coarse sparse hair, and a sallow complexion, suffering from slight blepharitis and from constipation. There was a slight diffuse swelling over the isthmus of the thyroid. There was very marked improvement with thyroid, but the child has never become

quite normal, partly owing to the fact that the family lives in a remote part of the county and there have been occasional lapses in thyroid administration.

The photograph of the mother with the two children was taken recently.

W. T. COLLIER, M.D.Oxon., M.R.C.P.Lond.,
Honorary Assistant Physician, Radcliffe Infirmary, Oxford.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

BORDER COUNTIES BRANCH: ENGLISH DIVISION.

ANTE-NATAL CARE.

AT a meeting of the English Division of the Border Counties Branch, held at Cockermouth on November 7th, Mr. H. HARVEY EVERS, M.S., F.R.C.S., delivered a British Medical Association Lecture on ante-natal care. The number of members and non-members present surpassed all records.

Mr. Harvey Evers said that the subject of his lecture must make a strong appeal to an audience composed largely of general practitioners practising obstetrics in the Border Counties. Ante-natal care was a branch of obstetrics which had been his special interest for a number of years, and all graduates of the Newcastle School were proud to be able to associate with it the name of Rutherford Morison, their Emeritus Professor of Surgery, who was one of the first to urge the necessity for scrupulous care of the expectant mother. Reference was then made to a new comprehensive maternity scheme just launched in Cumberland. Mr. Evers was delighted to hear that doctors throughout the county were giving this scheme such wholehearted support, since it was, to his mind, the first serious effort made in this country to secure the co-operation of the general practitioner in the obstetrical sphere of preventive medicine. He thought that the secret of success of the perfect maternal service (in its wide sense) was continuity of care and supervision before, during, and after labour; Dr. F. H. Morison's suggestions constituted a serious attempt to secure this for every woman in Cumberland who wished to have it. Ante-natal care was not a separate specialized part of midwifery; it should be an ordinary part of the routine of a general practitioner. The specialist need only be available to decide major points in diagnosis and treatment. Moreover, too much must not be claimed for, or expected of, ante-natal care; it must be regarded as an adjunct to, and not a substitute for, good midwifery. The regime must be rigid if the best results were to be attained. The generally accepted claims on behalf of ante-natal care were stated as follows: (1) it could make pregnancy more tolerable by removing or alleviating the "minor horrors"; (2) it could make pregnancy safer by alleviating the results of existing diseases or disabilities such as heart disease, enormously reducing the incidence of eclampsia, and diminishing the dangers of haemorrhage and its results; and (3) it could make labour easier and safer by reducing the dangers of contracted pelvis or disproportion, correcting most of the malpresentations, and decreasing the risk of sepsis.

Ante-natal Care in General Practice.

The outstanding features of routine ante-natal care in general practice were given as follows: (1) the patient was encouraged to book not later than the third month. At this interview dates were noted, complaints were elicited and dealt with, outstanding features of the medical history were investigated, the previous obstetrical history was carefully analysed, general advice about hygiene was given, and a general examination of the patient was carried out where found to be necessary. This latter should include a urine examination and a blood pressure reading if possible. Finally, the patient was instructed about the prompt reporting of certain important abnormalities, such as obstinate constipation, severe vomiting, haemorrhage of any kind and however slight, discharge, eye symptoms, and oedema. (2) The urine was tested once a month up to four months; once a fortnight till the end of the eighth month; and once a week during the final month. (3) A further abdominal examination was made during the fifth month, this being a good time also to check dates, to obtain a further blood pressure reading, and to hear the foetal heart. The external pelvic measurements might be estimated at this examination. (4) A most important abdominal examination followed at the thirty-sixth week to determine, and if necessary correct, the lie of the foetus, and to ascertain whether or not there was any disproportion between the foetal head and maternal pelvis. Examination of the feet and legs, and of the urine and blood pressure, were also undertaken as a routine, as at all other examinations. This regime constituted the indispensable minimum of ante-natal supervision, and in the vast majority of cases was all that was required. Obviously, however, abnormalities cropping up during the course of pregnancy occasionally called for much more frequent consultations and examinations. In the opinion of the speaker, routine vaginal examination was unnecessary, and should only be resorted to under the following definite indications: reason (from external examination) to suspect contracted pelvis; haemorrhage at any time during pregnancy, and however slight; purulent discharge; very occasionally cases of doubtful presentation, such as a doubtful breech in a primipara; acute or persistent pelvic pain; and retention of urine occasionally. In many thousands of cases, Mr. Evers estimated his vaginal examinations at between 7 and 10 per cent.

Special Indications in Pregnancy.

He then proceeded to discuss some of the "minor horrors" of pregnancy—such as pains in the abdomen, sides, and back, etc.—and indicated their pathology and treatment. The great importance of an adequate and properly fitting abdominal support was strongly emphasized, and types of belts were demonstrated. The value of calcium therapy in many of the painful conditions was indicated. The troubles due to constipation, flatulence, and infection of the urinary tract were enumerated, and their management fully discussed. The value of intensive alkaline treatment, saline purgation, and scrupulous dieting in cases of *B. coli* infections was pointed out. Reference was next made to the significance and correct interpretation of albuminuria, and the importance of scrupulously regular urine tests was emphasized. Even a trace of albumin must arrest attention, and call for more frequent tests and prompt restriction of diet. The value of regular blood pressure readings in all cases of albuminuria was heavily stressed; quite apart from subjective symptoms and albumin estimations, it was the most valuable clinical guide. Treatment consisted largely in rest, saline purgation, highly alkaline medicines, and dieting—complete starvation in severe cases. A conservative attitude towards the pregnancy should always be adopted, but failure to react to adequate treatment for two or three weeks should be regarded as indicating induction of premature labour. Prognosis depended upon the reaction to treatment; such reaction was best judged by the blood pressure and by the amount of albumin. Oedema was next discussed, with special reference to its significance and interpretation. It was so seldom due solely to "pressure" that such a cause should never be assigned until every other possibility had been explored. The vast majority of cases, without obvious local causes, such as varicose veins, were dependent upon a degree of toxaemia. Careful urine tests and blood pressure readings were essential in the diagnosis and supervision of these cases. Oedema was often the first danger signal in an impending toxaemia, and its importance should be made clear to all expectant mothers. By a scrupulous ante-natal regime, that dread disease eclampsia could be almost completely eliminated, but occasional cases of the "fulminating type" might still occur. Reference was next made to the

dangerous significance of "late vomiting and epigastric pain," and to chronic nephritis complicating pregnancy. The place of induction in these conditions was clearly indicated.

The Ante-natal Examination.

Mr. Evers then discussed the essential ante-natal examination at the thirty-sixth week, with special reference to malpresentations and disproportion. With regard to malpresentations the following rules emerged: (1) the vast majority of cases were readily diagnosed from an abdominal examination—vaginal or radiological examination being rarely required; and (2) the majority could be corrected by suitable measures. In connexion with occipito-posterior presentations Buist's or Ballantyne's "pad and binder method" was demonstrated; it was commended for the later weeks of pregnancy and during labour. In transverse and oblique presentations the possible causes (such as contracted pelvis or placenta praevia) should always be eliminated, especially in primigravidae. When such serious causes were found they must obviously take precedence in treatment. All cases should be corrected by external manipulation, and the patient be carefully watched up to full term. Recurrence was always significant, and all such cases should be seen early in labour to ensure safety. Breech presentations should be turned by external version in all possible cases. The ideal time was the thirty-sixth week, but it was never too late to attempt it. Many cases of spontaneous version were encountered between the twenty-eighth and thirty-sixth weeks. Version failed completely in about 10 per cent. of cases, and an anaesthetic was required in about 10 per cent. of the cases. The methods of external version were demonstrated, and the importance of flexing the extended legs to prevent recurrence was fully discussed. Difficulties and complications were mentioned. Of the latter, the speaker had encountered rupture of the membranes on three occasions—placental separation once and prolapsed cord twice. External version late in pregnancy sometimes started labour prematurely; practically the only contraindication was placenta praevia. With regard to disproportion and contracted pelvis, the value to be placed upon external measurements was first discussed, and Mr. Evers said that too much reliance must not be placed on these alone in either direction. The fit of the foetal head to the maternal pelvis must be the great clinical guide; and this should always be supplemented by inspection of the pelvic outlet. In a primigravida the head should be engaged in the pelvic brim at the thirty-sixth or thirty-seventh week; failing this, as in a multipara, the head must be fitted to the brim. Where any doubt existed, an internal pelvic examination was called for; when further doubt existed an anaesthetic examination was essential to determine the fit of the head. In a multipara the earlier obstetrical history and the weights of previous babies were of considerable help. The place of induction of premature labour as a prophylactic measure in doubtful cases was referred to. A warning was given against the abuse of Caesarean section for minor degrees of contracted pelvis. As regards haemorrhage during pregnancy the following rules were formulated: (1) bleeding in a pregnant woman, however slight, necessitates a complete investigation, which must always include a vaginal examination; and (2) cases of antepartum haemorrhage must be referred immediately to a nursing home or hospital when placenta praevia could not be definitely excluded as the cause, or where there were any signs of toxaemia, such as albuminuria. Only mild cases of accidental haemorrhage, without evidences of toxaemia, could be safely treated in the patients' own homes on expectant lines.

Reports of Societies.

MATERNAL MORTALITY AND MORBIDITY.

AT a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine, held on November 21st, the president, Sir EWEN MACLEAN, in the chair, a discussion took place on the interim report of the Departmental Committee on Maternal Mortality and Morbidity. The discussion was opened by Dr. T. Watts Eden and Dr. J. S. Fairbairn.

Dr. EDEN described the general scheme of the report, and welcomed the committee's endeavours to ascertain the "primary avoidable factor" in each of the 2,000 deaths which were investigated. This factor was not necessarily the direct cause of death, as in some instances the initial failure was want of any ante-natal supervision. Some interesting facts came out of the inquiry, one being the number of deaths which occurred during normal labour. The occurrence of sepsis in so-called normal labour was very high indeed, and in the majority of these cases no primary avoidable factor could be discovered. In explaining these two crucial subjects—namely, the cause of death in normal labour and the frequency with which sepsis follows normal labour—the report gave no help at all. The committee's recommendations as to the provision of better treatment for cases of miscarriage in hospitals were to be commended. Dr. Eden discussed the training of medical students, and said the schemes put forward by the committee should have the utmost consideration. The increased number of obstetrical cases suggested by the committee for the training of students can only be obtained if the Government and the local authorities are willing to place at the disposal of teachers very much extended facilities both for the training of students and for post-graduates in connexion with the new hospitals which have recently come under the control of local authorities. Such an opportunity may never arise again, and it ought to be utilized to the utmost.

Dr. FAIRBAIRN was impressed with the unanimity of the members of the committee. He referred to other reports where the maternal mortality rate was diminished among the poorer classes, although the general idea was that it was lower among the better-housed and better-fed members of the community. Dr. Fairbairn discussed the social factors in these cases of maternal death and the influence of maternity insurance. He thought that if doctors did not attend cases of normal labour it would be difficult for them to keep themselves up in what one would call the conduct of ordinary normal labour. The health of the patient herself and all her social conditions had to be considered as being of the greatest importance. The relief of pain generally had brought about the consequence that pain is not as easily borne as formerly. The new situations of modern life had to be considered, especially with regard to the maintenance of normal function. This applied to the problem of anaesthetics in labour. Dr. OXLEY said that the committee could not be blamed for not finding out the cause of maternal mortality. It was appointed first to advise upon the application to maternal mortality and morbidity of the medical knowledge at present available, and, secondly, to inquire into the needs and direction of further research work. It was the aim of the committee to give the Government some practical method whereby a reduction in the maternal mortality could be effected, and to show the direction in which research should advance. Professor R. J. JOHNSTONE was concerned most with the education of medical students, and the part of the report dealing with this was new. The problems were, Can the teaching schools put these regulations into effect, and, if so, will they produce a competent practitioner? These questions had been discussed by Professor Munro Kerr elsewhere.

Lady BARRETT said that the openers of the discussion had brought forward two important points in the report. One was that only in 50 per cent. of the cases was the cause of death found. We must therefore look for the causes of sepsis elsewhere than in contact cases. The other factor was the woman herself, and this should be considered before any other. Practitioners were not necessarily all

experts, but they should have reasonable skill, judgement, and knowledge. Would these regulations ensure the fulfilment of these conditions? It was difficult to get women to undergo ante-natal supervision if it meant residence in hospital or attendance at a long-distance clinic. The claims of her home were usually her first consideration. Mr. GILLIATT said that the General Medical Council or the examining bodies did not insist on the present regulations being carried out with regard to students conducting twenty cases of labour. Dame LOUISE MCILROY thought the chief value of the report was the crystallization of the opinions of the representatives of societies and of the obstetricians who gave evidence before the committee. She believed that ante-natal supervision should be carried out by trained obstetricians. Mr. DONALD ROY said there was now an opportunity for making a very definite advance towards obtaining the requisite number of cases for medical students. The necessity for more obstetrical beds, or facilities elsewhere, must be pushed by the medical schools. The welfare of the patient was the first consideration when the administration of anaesthetics was contemplated. Women who were delicately nurtured had more fear of the pain of labour than had the women of the working classes, who were in closer touch with the reality. Dr. THEOBALD was of the opinion that midwives should not be allowed to make vaginal examinations, and practitioners should be restricted to forceps application only. Any other operation should be done by a specialist. More maternity hospitals were necessary throughout the country for the admission of complicated cases and for the training of students. Professor BROWNE reminded the meeting that the report was only an interim one. One of the chief problems was the cause of death in normal labour. He had a firm belief in Listerism as a prevention of puerperal sepsis. The whole scheme was based on a recognition of the fact that the psychology of woman had changed, and that she demanded premature intervention because she could not bear pain well. Professor Browne discussed the advisability of the direct responsibility of the teacher in signing-up students for examination. The standard of training of the general practitioner was most important.

Mr. COMYNS BERKELEY believed that everything the committee recommended should be carried out with regard to the training of medical students. The additional number of cases required could be found in the hospitals of the London County Council. The PRESIDENT said that the report conformed very much with the opinions generally expressed by obstetric teachers.

THE NEW MERCURIAL DIURETICS.

AT a meeting of the Section of Therapeutics of the Royal Society of Medicine on December 9th, with Dr. PHILIP HAMILL in the chair, Dr. EVAN BEDFORD opened a discussion on novasurol and salyrgan.

Dr. Bedford said he had begun to try novasurol in 1920, but had been so unfavourably impressed by its toxic properties that he had now abandoned its use. Salyrgan he had used for the past eighteen months; it contained 36 per cent. of mercury, and was given in doses of 1/2 to 2 c.cm., but it was considerably less toxic than novasurol. It was supposed to act by diminishing the affinity of the tissue colloids for water and sodium chloride, but in cases of nephrosis it had been found to produce either no diuresis or else much less than the degree recorded when the kidneys were normal, so that it probably acted in part on the kidney as well. The effect of salyrgan was increased by administering alkalis, such as ammonium chloride, by mouth. Cases recorded in the literature made it apparent that salyrgan was little inferior to novasurol in its diuretic action, and considerably safer, never giving rise to mercurialism if injected in suitable doses. In Vienna the preparation had been used for cardiac oedema, cirrhosis of the liver with ascites, pleural and pericardial effusions, nephritis, nephrosis, and malignant ascites, but the speaker thought its chief value lay in its effects on oedema of cardiac origin. He diluted 2 c.cm. of the 10 per cent. solution of salyrgan with 10 c.cm. of sterile saline solution and injected it slowly into a vein, about ten minutes being allowed for the operation. The fluid intake was restricted during treatment to twenty to thirty ounces daily, but digitalization could continue, and 15 grains of ammonium chloride was given thrice daily by the mouth. Contraindications to the use of the drug were acute nephritis with blood and casts in the urine, and severe diarrhoea, but the existence only of albuminuria need not prevent its use. Among twenty-seven cases of cardiac failure with gross oedema he had only had three failures, and these three patients were dying on admission. The effects were equally good whether the heart was fibrillating or failing with normal rhythm. Dr. Bedford quoted several cases in which salyrgan had produced marked diuresis, and in which the weight in some cases had fallen between 40 and 50 lb. in four weeks as a result of the loss of fluid.

Professor F. R. FRASER gave his experiences of novasurol, which he had found to produce an effective diuresis. Its use, however, was limited by its toxicity, and he doubted whether the benefit produced was of much ultimate value, since the patients on whom it was employed were so seriously injured in health as to be beyond any great degree of recovery. He had seen one case of thyroid intoxication with rapid pulse and oedema where novasurol had restored the patient to a condition suitable for operation. Dr. J. STRICKLAND GOODALL thought novasurol one of the most dangerous and toxic drugs ever put into the hands of the medical profession; he showed two specimens taken from the alimentary canal of patients treated with this remedy in which the mucous membrane was haemorrhagic and sloughing. Novasurol in these cases had cleared up both the oedema and the patients. Dr. D. H. KOTTHOF (Vienna) said that the use of novasurol had now been abandoned in Austria. He had seen very good results with salyrgan, not only in cases of cardiac oedema, but in cases of nephrosis where the kidney was not seriously damaged, and in cirrhosis of the liver with ascites.

Sir JAMES DUNDAS-GRANT asked whether it was the case that salyrgan had been used in treating patients with Ménière's disease, with resultant improvement of hearing. In reply, Dr. WARREN CROWE said that Meakin had used salyrgan in Ménière's disease as a test, but not as a form of treatment. The theory was that the cells of the labyrinth were waterlogged in this condition, and about 80 per cent. of the patients showed some degree of water retention. Meakin had found that they reacted differently from the normal patient when given water and salyrgan together; he treated them with calcium diuretics and restriction of fluid, and stated that as long as their mouths were dry they had no symptoms of Ménière's disease.

Dr. IZOD BENNETT referred to the experiments of Goverts in Belgium, which went to show that the action of salyrgan was largely on the kidney, and that therefore its use in cases where the kidney cells were damaged should be avoided. Moreover, in cases of nephritis with profound albuminuria analysis of the plasma protein showed it to have fallen to about one-half the value found in normal blood, while in cardiac oedema it was normal. In nephritis the osmotic pressure of the plasma protein had fallen, so that fluid was less readily drawn into the blood stream from the tissues. It did not appear that the artificial removal of water, either by drugs or by mechanical means, would change a physical condition of blood in which the plasma protein was reduced, but such theoretical considerations were not yet sufficiently proven to interfere with the use of effective remedies. In oedema of renal origin, where the blood pressure and blood urea were normal, he thought salyrgan was useful, and probably safe; where there was gross oedema, with a high blood pressure and increased blood urea, he thought that, though it might relieve symptoms, the remedy was dangerous, because the kidney function was seriously impaired. Dr. J. EAST preferred to use theophyllin and diuretin for cases of cardiac oedema rather than novasurol, which he considered to be too toxic. He had produced an

effective diuresis in one case with salyrgan, but the urinary output fell again as soon as the drug was stopped, and it appeared that it must be given regularly to be useful. Dr. A. GAINSBOROUGH said that, although a few patients with nephrosis might recover, a large number died from pneumococcal or streptococcal infections, usually after all oedema had disappeared. He wondered whether the advantage of giving mercurial diuretics in nephritis was worth the risk; unless it could be shown that they did not shorten the patient's life, he thought they should be avoided.

Dr. BEDFORD replied that he had had several failures in cases of nephritis and nephrosis, and one success where there had been coexistent cardiac failure. He agreed with Professor Fraser that a patient who was seriously ill from cardiac failure was wrecked in health even if he was relieved of his oedema. He added that the patients themselves set a high value on their increased comfort, and attended regularly for treatment with salyrgan at his out-patient department. He had heard of the use of salyrgan in migraine, but not in Ménière's disease.

THE ACHLORHYDRIC SYNDROME.

AT a meeting of the Manchester Medical Society on December 3rd, papers entitled "The achlorhydric syndrome" were communicated by Dr. T. H. OLIVER and by Dr. JOHN F. WILKINSON.

Dr. Oliver's paper was based on the results obtained after a gastric analysis of over a hundred cases apart from pernicious anaemia in which there was achlorhydria or a marked hypo-acidity. The symptoms fell into two main groups. In the first, the gastro-enterogenous group, there was flatulent dyspepsia, with intermittent diarrhoea and constipation of varying severity, and the passage of foul-smelling and badly formed stools. A high degree of neurasthenia was present, and the patients were usually regarded as suffering from neurotic dyspepsia. In the second group a sore tongue or mouth was a prominent feature. There might be either a glossitis with atrophy of the papillae and a smooth shiny tongue, or actual ulceration. Three smaller groups also occurred in which achlorhydria was associated with rheumatoid arthritis, with debility and a secondary anaemia, and with skin rashes, usually urticarial. The condition was more frequent in women than in men in the proportion of three to one, and a familial tendency was common. Although the symptoms were usually not dangerous, occasionally severe illnesses might develop in association with it—for example, acute yellow atrophy, Graves's disease, and diabetes. In all these cases the therapeutic results obtained by giving large doses of hydrochloric acid and pepsin were very striking. There appeared to be two types of patients: (1) those with an acid diathesis who tended to develop peptic ulcers but did not develop symptoms associated with intestinal intoxication; and (2) those described in this series with an alkaline diathesis. In the latter the main lesions appeared to be intestinal, or they arose from toxic absorption from the intestine, and it was in them that fruits and foods which left an alkaline ash produced an exacerbation of symptoms.

Dr. Wilkinson's paper gave an account of a series of 126 cases examined during the last two years at the Manchester Royal Infirmary. They were divided into two main groups—namely, persistent or recurrent diarrhoea (60 cases), and sore tongue (33 cases). Three smaller incidental groups were defined also: rheumatoid arthritis (15 cases); urticaria (8 cases); and debility (10 cases). The occurrence of gastric secretory impairment was mentioned, and the importance of the fractional method of gastric analysis was emphasized and illustrated by cases. It was indicated that while the usual method of classifying the cases according to the secretion of free hydrochloric acid was convenient, and formed a useful basis, there were other estimations equally important, such as that of the total chlorides and peptic activities, in the determination of the degree of damage to the gastric secretory mechanisms. It was probable that there were other substances of much importance, not so easily detected. Fractional gastric analyses in the group of 60 consecutive cases with recurrent diarrhoea showed that 29 patients had achlorhydria and 19 hypochlorhydria (less than 10 units)—a total of 80 per cent. with diminished acid secretion. Treatment with a mixture of hydrochloric acid and pepsin was instituted, and thirty patients had received continuous treatment for at least six months (maximum two years). The results showed that 89 per cent. of those with achlorhydria were cured, and 5.5 per cent. much improved so long as they continued this therapy, while the hypo-acidic cases showed 70 per cent. cured and 20 per cent. much improved. The remaining cases in this group, having had less than six months' treatment, were not included in these figures, but all the patients were progressing very well. In the group of 33 cases with sore tongue, 58 per cent. showed reduced secretion (11 achlorhydria and 8 hypochlorhydria). The results of the acid and pepsin treatment gave 100 per cent. cures in those with achlorhydria and 80 per cent. in hypo-acidic cases six to twenty-four months after institution of the treatment. Most of the remainder who had discontinued treatment, with a consequent return of symptoms, were again relieved by recommencing the acid mixture. In the smaller groups, impaired secretion was found in rheumatoid arthritis (73 per cent.), urticaria and angioneurotic oedema (87.5 per cent.), and debility (80 per cent.). The effects of the acid and pepsin treatment in these cases were discussed. A summary of the results obtained in these 126 cases had shown a total of 74 per cent. with hypo-acidity (44 per cent. of these having achlorhydria), while the proportion of females was four times greater than that of males. The significance of these results and the successful treatment were considered, supported by the familial occurrence of achlorhydria; this absence of acid secretion in the stomach was shown to be an abnormal condition, and probably the first sign in many cases of more serious trouble later. Dr. Wilkinson believed that the finding of achlorhydria in apparently normal persons was an indication for a careful search in such families for diseases with familial tendencies, and discussed the need for prophylaxis against the various conditions.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this society held on November 20th, Dr. C. J. FULLER read notes on a case of acute lymphatic leukaemia with cancrum oris occurring in a boy, aged 15, who was admitted to the Royal Devon and Exeter Hospital with a history of painful and swollen gums of seven days' duration. On admission the temperature was 102° F. and the pulse rate 114. The tissues over the lower jaw were swollen and tender, but no discoloration of the skin was seen; there was acute gingivitis, with small gangrenous patches over the gums on the lower jaw. The upper and lower incisors were loosened, and there was marked feter of the breath. The spleen was enlarged to within 3 inches of the umbilicus, and the liver margin was 1½ inches below the costal margin. The axillary and inguinal lymphatic glands showed moderate enlargement. Tonsillitis was present, and Vincent's spirillum was found. The blood count was: red cells 2,232,000 per c.mm.; haemoglobin 30 per cent.; white cells 239,000 per c.mm., of which about 80 per cent. were mononuclear cells of the lymphoid type, which did not give the oxidase reaction. Eventually the gangrene extended to the whole of the gums and to the skin over the chin. Small haemorrhages occurred from the gums, and several teeth were cast spontaneously. The boy died about ten days from the onset of the cancrum oris. Dr. J. H. DOUGLAS MURRAY read notes on a case of fragilitas ossium, in view of its rarity and of the fact of the association of a recent carcinoma with the onset of the bone lesions. A woman, aged 46, had had both breasts removed for carcinoma; the scar over the site of the left breast still tended to break down from time to time. Dr. Murray was first called to see her in consequence of a fracture through the middle third of the right femur, which had happened spontaneously when walking

in the street. No previous fracture was known to have occurred, and there was no family history relevant to the condition. The woman was anaemic, but otherwise routine examination revealed nothing abnormal in addition to the scars already mentioned and the fractured femur. Two or three days later, the patient being immobile on a long splint, there occurred a spontaneous fracture of the right clavicle. With an interval of one week between them, similar fractures followed of the left humerus and left clavicle. The right femur united with no sign of external callus, and the right clavicle with considerable thickening. No callus formation was so far apparent in the left clavicle and left humerus. Within the previous ten days an unexplained patch of anaesthesia had appeared over the left deltoid, but vigilant search for secondary malignant deposits in the bones, or elsewhere in the body, had given negative findings. Dr. Murray thought that if the infection was due to secondary deposits some sign of tumour would have been evident. Dr. C. SEWARD showed a burly labouring man, aged 52, with anomalous neurological signs in association with what appeared to be lead palsy. There had been a sudden onset, with dropping of both wrists, last January. A history pointing to lead colic was confirmed by a blue line on the gums when the man first came under observation. There had been progressive weakness of the muscles of the upper extremity, and, more recently, weakness of the left leg and trunk. He was found to have a moderate degree of glycosuria and a true diabetic blood sugar curve. There was secondary anaemia, and blood films showed punctate basophilia in an otherwise normal differential leucocyte count. The Wassermann reaction of the blood was negative. The blood pressure (systolic 120, diastolic 85) was low for his age. Dr. Seward had found no sensory changes, but the paralysis was more definite in the antebrachial group of muscles of the left side. At the same time, all the upper reflexes were absent; the left patellar reflex, which had been increased at first, was now diminished, the left leg being dragged on walking. Insulin injections, the customary anti-plumbism remedies, and splints for counteracting deformities, had not affected the neurological signs, which appeared to be slowly progressive and resistant to treatment. Dr. R. N. CRAIG thought there was a double pathological process in this case; although plumbism could not be discountenanced, the symptoms suggested a lower neuron type in addition—progressive muscular atrophy. Dr. A. L. CROCKFORD remarked on the very low blood pressure in view of the very high readings usually associated with lead poisoning.

DIET AND DENTAL CARIES.

A MEETING of the London Association of the Medical Women's Federation was held on November 25th, with Dr. LETITIA FAIRFIELD in the chair. After a tribute had been paid to the memory of Dame Mary Scharlieb, Mrs. MAY MELLANBY read a paper on diet and dental caries. She said that it was formerly thought that once teeth had erupted their health was dependent on the condition of the mouth. This was now known to be only a partial truth. Teeth were living structures, and as such were dependent on nourishment delivered by the blood stream. Discussing the structure of human teeth in relation to dental caries, she described her observations on milk teeth. The large majority of children's milk teeth were hypoplastic and badly formed, and there was an undoubted relation between such teeth and the incidence of caries. The presence or absence of vitamin D in the diet affected the arrangement of teeth and the growth of the jaw, as well as the structure of the teeth. If this vitamin was deficient many other factors became of importance, notably the type and quantity of cereal in the food. If oatmeal was the cereal taken a large quantity of vitamin D must be taken to counteract it. Unfortunately workers had not yet been able to produce caries at will in animals. Discussing the spread and arrest of caries in children, Mrs. Mellanby showed that the addition of vitamin D to the diet tended to arrest the development of caries when it had started. It was not definitely known how vitamin D acted.

An animated discussion followed. Asked which type of cereal was best for the growing child, Mrs. Mellanby recommended rice and white flour. As regards the source of vitamin D, she preferred cod-liver oil. It could be made acceptable to almost any child in quantities up to 3/4 ounce per day.

Reviews.

ATLAS OF PATHOLOGICAL ANATOMY.

READERS of the *British Journal of Surgery* will already be aware of the intention of the editorial committee to bring together the supplements which have appeared in that journal during the past few years, and publish them in the form of an *Atlas of Pathological Anatomy*.[1] The first volume has now been issued, and the committee is to be congratulated on the success of its project. The atlas has features which distinguish it from previous works of the kind, and are likely to make it of real value to surgeons in their practical work; and, considering the number and excellence of the plates, it is issued at so moderate a price that most surgeons will, one may suppose, wish to have a copy at hand for reference and study. Moreover, the figures being remarkably true to nature in colour, form, and size, it seems hardly an exaggeration to say that, as material for study, they are almost as good as the original specimens.

The particular features of the work are that the specimens have been chosen to show, not merely the anatomical characters of the lesions, but also their effects on the organ involved; and further, by means of clinical histories, which are included in almost every case, to exemplify the physical signs and symptoms to which the lesions give rise. The intention has been to produce a work of practical utility, and not merely one of interest. The arrangement is largely clinical, and the subjects have in many instances been chosen because the histories contain features the mechanism of which can be deduced from the study of the specimens. The value of the work to those whose circumstances preclude the possibility of access to the museum or post-mortem room for the purpose of supplementing their knowledge will therefore be obvious; they have in the atlas a ready means of returning to the bed-rock of pathological anatomy, upon which the superstructure of medical science has been built up. The compilation of the work has been entrusted to Mr. E. K. MARTIN, who is presumably responsible for the choice of subject-matter and of the individual specimens depicted, and for the general arrangement of the work. In addition to his commentaries on the several specimens he has, in the case of each division of the subject, added an introductory section, giving a general account of the lesion and its natural history. This is a valuable feature of the work, and renders it, in a limited sense, a textbook of pathological anatomy. It should be mentioned that only those lesions are dealt with which are likely to be seen in ordinary practice; rarities and curiosities have been excluded. The successful production of an atlas possessing these features must depend primarily on the existence of a sufficiently abundant available supply of good material. In this respect the promoters of the work were in the enviable position of having ready to hand what is probably the finest collection of pathological material to be found in any country; and they have not only drawn on the collections of the Royal College of Surgeons of England and the London schools, but have brought some of the provincial museums into the scheme, many of which now vie with our metropolitan museums in excellence and completeness.

It is intended to continue the publication of the atlas until it includes all such subjects as can be profitably illustrated by drawings of museum specimens; the present volume deals with diseases of the bones, stomach, and duodenum, breast, kidney, adrenal, gall-bladder, and bile ducts. It is due to the publishers, and to all concerned in its preparation, to say that they have produced a work which is a credit to British surgery and to British artistry. The beauty of the colour and black-and-white work of Maxwell and Sewell is too well known to need commendation; and the same may be said of Ford's accurate

[1] *Atlas of Pathological Anatomy.* Compiled by E. K. Martin, M.S., F.R.C.S. Issued under the direction of the Editorial Committee of the *British Journal of Surgery*. Vol. i. Bristol: J. Wright and Sons, Ltd.; London: Simpkin Marshall, Ltd. 1930. (Sup. roy. 8vo, pp. 489; 302 illustrations. 75s. net.)

histological drawings. The reproductions, also, are as perfect as one could wish. A melancholy interest attaches to the introductory note, which was written by Sir Anthony Bowlby. He always took the deepest interest in pathological anatomy and pathological museums, and never lost belief in their importance at a time when their value was in danger of being underestimated. The danger has now happily passed, and it would doubtless have been a gratification to him to see the issue of the atlas as at least one evidence of a revival of interest in the subject. He has expressed the hope that the atlas may "not only be interesting in itself, but also induce its readers to visit the Hunterian and other museums and become acquainted with those specimens which are too numerous to be depicted in any publication."

WHITRIDGE WILLIAMS'S "OBSTETRICS."

FOR the sixth edition of his valuable textbook on *Obstetrics*,[2] Professor J. WHITRIDGE WILLIAMS has found it necessary to revise every page thoroughly, and indeed to rewrite some chapters. The revolution which midwifery has been going through under the influence of antiseptic methods and the development of pre-natal care is responsible for some of the alterations, although others, as the author frankly admits, are due to a change in his opinions brought about by the growth of experience. He has spent a lifetime in thinking over the many problems of normal and abnormal midwifery, and has taken nothing for granted, but has tested for himself and considered every method of treatment advocated. Thus credit is given to every obstetrician who has helped to improve the art, and the extensive bibliography at the end of each section will be valued by all serious students of midwifery. A feature of the book is the author's emphasis on the conservative aspect of this branch of medicine: surgery, he maintains, should be invoked as an aid to the obstetrician only when purely obstetrical methods have been found not to give entirely satisfactory results. The chapters on special anatomy and physiology, and on the development of the ovum have been carefully revised and brought up to date, and are accompanied by excellent illustrations. The practical bearing of the information is kept well to the front. At first glance it is rather surprising to find that only six out of the 1,157 pages are devoted to the subject of pre-natal care, but the explanation is that details of this work will be found under other headings. It would, however, be more convenient, even at the cost of some repetition, if some of this information could have been brought into the chapter on the management of pregnancy. We miss the name of Ballantyne, one of the pioneers of ante-natal hygiene. Some of the terms used differ from those in common use in this country, and this may lead to misunderstandings.

The toxaemias of pregnancy are fully considered, and an attempt is made to evolve some sort of order out of chaos by a tentative classification of the toxaemias accompanied by albuminuria into three types—namely, "low reserve kidney," "pregnancy complicated by chronic nephritis," and "pre-eclampsia." Contracted pelvis is very fully described, but the treatment recommended seems hardly to warrant the long description or the meticulous pre-natal care upon which the author insists, and many will feel that, although he dismisses it with scorn, induction at or about the thirty-eighth week, which often gives excellent results to both mother and child, has a definite place in the management of pregnancy with contracted pelvis. The methods of treatment for other abnormal conditions differ from those usually adopted in this country. Thus, no mention is made of bimanual compression of the uterus for post-partum haemorrhage. In accidental haemorrhage the advice is given to perform Caesarean section in all cases that cannot be terminated at once, which is surely not intended to be taken literally, seeing that the majority can be treated successfully by expectant methods. From these few criticisms it will be clear that in our opinion this is a textbook that must be recommended with some reserve to the English medical student preparing for a pass examination; but it has very great value as a scientific treatise setting forth the data, and summing up in a judicial manner the arguments upon which the practice of midwifery at the Johns Hopkins Hospital has been developed by one of the makers of modern obstetrics.

[2] *Obstetrics.* By J. Whitridge Williams, M.D., Sc.D., LL.D. Sixth enlarged and revised edition. New York and London: D. Appleton and Co. 1930. (Pp. xvi + 1157; 730 figures, 17 plates. 40s. net.)

THE PHYSIOLOGY OF THE VESTIBULAR APPARATUS.

THE first experimental observations on the functions of the semicircular canals were made over one hundred years ago by Flourens, who followed a sound principle in physiology—namely, that the first rule for elucidating the function of an organ is to destroy it and observe the effect on the organism. He narrowed his researches from destruction of the whole labyrinth to division of separate canals. He noted the tumultuous movements which resulted from these operations, and that these movements have as many directions as there are cardinal or principal directions. This originated the conception that the semicircular canals are the seat of forces which influence the movements of the head. It was not until the seventies that Goltz and Stefani made further experiments, and concluded that the semicircular canals are the specific organ for the sense of position of the head, whilst Breuer, Mach, and Crum-Brown, as the result of their researches, produced the theory that the semicircular canals serve for the perception of angular accelerations. Cyon also, in the late seventies, made numerous experiments, and studied the connexion of the semicircular canals with nystagmus. In the eighties Ewald proposed that the semicircular canals are responsible for the maintenance of tone in skeletal muscles. Cyon also drew a striking analogy between the function of the labyrinth and the rudder of a ship. This constitutes a second period in the history of the physiology of the labyrinth, in which little further progress was made except by Bárány, until the work of Sherrington prepared the ground and provided a technique for the famous researches of Magnus and de Kleyn. These are based essentially on the classical methods for the investigation of reflex activity. Thus the righting reflexes, which act on the head, cannot be studied in a decerebrate animal, but persist in a thalamic preparation, with the diencephalon intact. They are lost when such an animal is deprived of its labyrinths. The researches of Magnus and de Kleyn, with numerous fellow workers at Utrecht, embrace an enormous number of experiments and observations which have thrown fresh light on the functions of the cerebellum, as well as on the vestibule and its central connexions. This stage brings our knowledge of this branch of physiology up to its present position.

This slight sketch is necessary to indicate, however imperfectly, the scope of *The Physiology of the Vestibular Apparatus*,[3] by MARIO CAMIS of Parma, translated by Dr. R. S. CREED of New College, Oxford. It follows the historical method, and presents the solution of an extraordinarily complicated physiological problem with great lucidity. It embraces also much that has not been mentioned, such as the question whether the semicircular canals possess acoustic sensibility, and the author's own researches on the vestibular vasomotor reflexes, and even touches on the doctrines of Kant. The book, however, is in the main inspired by the work of Magnus and de Kleyn, based on Sherrington's conception of reflex activity. There is no work in English which makes any attempt to cover the same ground, and therefore physiologists, neurologists, and otologists will be grateful to Dr. Creed for this fascinating translation. Camis seems to include everything worth recording, and studies the problem from every aspect, so that there is much that is stimulating and controversial. The reader is taken through this maze by an unerring guide, who conducts him to the conclusion stated on page 186, where the functions of the ampullae of the semicircular canals and the maculae of the saccule and utricle are finally synthesized after this long analysis.

[3] *The Physiology of the Vestibular Apparatus.* By Mario Camis. Translated and annotated by R. S. Creed, B.M., B.Ch. Oxford: The Clarendon Press. 1930. (6¼ × 9½, pp. xiv + 310; 65 figures. 21s. net.)

The author, however, as he makes clear in the epilogue, is under no illusion that the reflexes observed in decerebrate or decerebellate preparations indicate all the paths followed by labyrinthine impulses in the normal animal. The central connexions of the vestibular apparatus are so complex that it is impossible to isolate the labyrinthine function in the intact animal.

It has only to be added that the Clarendon Press presents the volume in a form which makes it a pleasure both to read and to handle.

SCIENCE TEACHING IN SCHOOLS.

A VOLUME entitled *Teaching Science in Schools*,[4] by JOHN BROWN, formerly inspector of schools under the London County Council, is an important book. It was first published in 1925, and a second edition has just been issued. Its theme is based upon the proposition that science teaching in our schools to-day has become too narrow, too routine, too uninteresting, too unpractical, and that it is therefore in urgent need of development on new and more rational lines in order to give it a broader, more human, and more lasting appeal. This proposition is true, but it is only now being occasionally admitted by teachers, and has scarcely anywhere led to any practical change. For many years now school science teaching—more particularly the teaching of chemistry and physics, the only sciences usually taken in boys' schools—has been conducted upon the theory that pupils are to discover everything for themselves and to be told nothing, and that accurate measurements and quantitative results are the primary essentials. "The consequence has been," says Mr. Brown, "that experiments are done merely for the sake of doing them, and those sciences which do not involve measurement and quantitative work have been completely neglected." Most pupils will not become scientists, but require a general education, which is incomplete if it does not include some acquaintance with natural phenomena, physical properties and laws, and the applications of scientific principles to everyday life. The bulk of the small volume is, however, not critical, but constructive, and the author shows how the necessary reform of method and scope can be carried into effect with various types of scholars and of schools. Not only is his thesis important, but his suggestions to teachers, for whom the book is primarily intended, are very practical and valuable.

TREATMENT OF ASTHMA.

THE literature of medicine is overburdened with works purporting to solve the problems of what Dr. A. H. DOUTHWAITE terms "the mysterious malady." Asthma research organizations have been established in many countries; the specialist, the general practitioner, the biochemist, and many others, have joined battle against an unusual and well-equipped adversary; still, the "tumult and the shouting" show no sign of dying down. It is therefore a relief to take refuge in the comparative quietude of Dr. DOUTHWAITE'S short and well-reasoned treatise entitled *The Treatment of Asthma*.[5] In point of fact, less than half the book is devoted to treatment proper, the first eighty pages summing up the factors which are generally regarded as constituting the asthma diathesis. There is evidence throughout of careful consideration of both theory and fact. The author succeeds in his effort to present an up-to-date summary of this most difficult subject, and he will save the student much laborious searching through the vast literature now in existence. With regard to treatment, he lays special stress on physiotherapy and vaccines as methods of relief, and describes the exercises which are intended to produce mobilization of the chest wall and shoulder girdles. Acknowledgement is made of the success which has resulted at Guy's Hospital, under the supervision of Miss Angove, from rhythmic exercises accompanied by gramophone music.

[4] *Teaching Science in Schools.* By John Brown, M.A., B.Sc. Second edition. London: University of London Press. 1930. (Cr. 8vo, pp. xii + 172. 3s. 6d. net.)

[5] *The Treatment of Asthma.* By A. H. Douthwaite, M.D., F.R.C.P.Lond. London: H. K. Lewis and Co., Ltd. 1930. (Pp. viii + 164. 7s. 6d. net.)

NOTES ON BOOKS.

THE second volume of the twenty-ninth and thirtieth edition of the Strümpell-Seyfarth Textbook of Special Pathology and Therapeutics[6] has rapidly followed the appearance of the first, to which we drew attention in our issue of August 2nd (p. 184). The present volume is devoted to diseases of the urinary system, locomotor disorders, including acute and chronic rheumatism, and acute poliomyelitis, diseases of the blood, endocrine disturbances, metabolic disorders, avitaminosis and allied conditions, and diseases of the nervous system. There are three appendixes, dealing respectively with the important intoxications, prescriptions, and baths and spas respectively. The present edition has been well brought up to date, the text being freely interspersed with excellent reproductions of photographs, skiagrams, and charts.

Dr. JACQUES VIE'S well-documented work on the insane and criminals at Saint-Lazare in the seventeenth and eighteenth centuries[7] is divided into three parts, dealing respectively with the history of this celebrated Paris prison during the period 1632–1789, when it was exclusively reserved for men, with the administration of the prison, including the principles and objects of detention therein, and with illustrative cases. Throughout the Middle Ages, and until the beginning of the seventeenth century, Saint-Lazare served as a leper hospital, but in 1632 it was handed over to the "Congregation of Priests of the Mission," headed by St. Vincent de Paul, who organized it as a house of detention for members of the upper classes suffering from mental or moral infirmities, the former including melancholia, psychasthenia, periodic psychoses, dementia praecox, and general paralysis, and the latter various anti-social acts, such as drunkenness, indecency, theft, cheating, crimes of violence, and even murder. St. Vincent instituted a method of psychotherapy which was applied to both these groups, and consisted in isolation, silence, and a series of intellectual exercises, supplemented by individual encouragement and collective addresses.

In The Ferments,[8] a study emanating from the physiological laboratory of the Medical Faculty of Paris, and introduced by a preface from the dean of the faculty, Professor G. H. ROGER (who has shown his keen interest in the subject by a number of papers), Mlle YVONNE SCHAEFFER first gives a sketch of the present state of knowledge about ferments in general, and then considers in greater detail the three animal ferments—amylase, trypsin, and lipase. On each of these agents she has carried out chemical investigations which are discussed with full knowledge of the work of others. Her conclusions are clearly tabulated, and appended to her monograph there is an extensive bibliography.

[6] *Strümpell-Seyfarth Lehrbuch der Speziellen Pathologie und Therapie der inneren Krankheiten.* Neunundzwanzigste und dreissigste, neu bearbeitete Auflage. Zweiter Band. Von Dr. med. et phil. C. Seyfarth. Leipzig: F. C. W. Vogel. 1930. (6¾ × 9½, pp. xii + 991; 215 figures, 6 plates. M.25.)

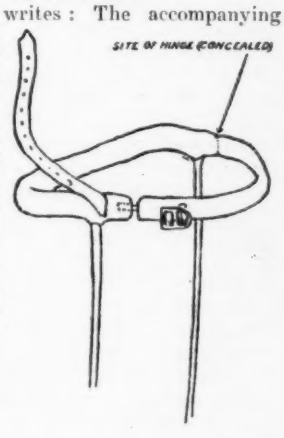
[7] *Les Aliénés et les correctionnaires à Saint-Lazare au XVIIe et au XVIIIe siècles.* Paris: F. Alcan. 1930. (6½ × 10, pp. 247. 30 fr.)

[8] *Les Ferments: Conceptions modernes, recherches expérimentales sur quelques ferments animaux.* Par Yvonne Schaeffer. Préface du Professeur G. H. Roger. Paris: Masson et Cie. 1929. (6½ × 10, pp. vi + 168; 20 figures. 28 fr.)

PREPARATIONS AND APPLIANCES.

A MODIFIED THOMAS KNEE SPLINT.

DR. E. SCOTT (Ashford, Kent) writes: The accompanying illustration represents a modification of the Thomas knee splint. The front portion of the pelvic ring is hinged externally so that it will open and swing outwards. It fastens internally with a pin, which fits into a slot and is held firm by means of a strap. When the ring is opened the splint can be slipped under the patient's leg instead of being "threaded" on in the usual way. Painful manipulations in the case of the recent injury or the acutely inflamed joint are thereby reduced to a minimum.



The splint has been made for me by Mr. J. H. Montague, 69, New Bond Street, W.1.

RUSKS.

Messrs. Cow and Gate Ltd. have sent us a sample of a new rusk which is said to be suitable for young children. It is tough, therefore encouraging mastication without causing pain in the child's mouth. It is palatable and crisp, and of handy size.

THE 1930 PILGRIMAGE TO MECCA.

A RECENTLY published report[1] gives the details collated by the Egyptian Council of Maritime Sanitation and Quarantine in connexion with the 1930 pilgrimage to Mecca. Dr. J. Gilmour, president of the council, notes in his introduction that 84,821 pilgrims came by sea, and 23,776 passed through Egypt *en route* to the Hedjaz. The religious ceremonies at the Holy Places began on May 8th and ended on May 22nd. Time holds small place in Oriental calculations, for pilgrims had already begun to arrive in Egypt during November, 1929. A general survey of the whole report shows that there was remarkably little disease, and this happy result can be placed to the credit of the measures advised in the International Sanitary Convention of June, 1926, and the resolutions adopted by the Beirut Conference of January, 1929, which were closely observed by the sanitary authorities this year, particularly in managing the transit of pilgrims through Syria and Iraq. Not only in Egypt, but in most of the countries of origin, vaccination was more generally practised, notably in India, where all the pilgrims embarking at Karachi were compulsorily vaccinated. The majority of these countries followed the precepts of the 1926 Sanitary Convention with regard to the general measures necessary for the management and transport of the pilgrims, and a hint is given to those authorities who have not yet conformed that it would be well for them to do so in the near future.

The Approaches to Mecca.

The avenues of approach to Mecca are dealt with in the earlier chapters, and from them can be gathered the thorough way in which the whole traffic of this annual religious migration was directed. Pilgrims who cross Egypt are of three classes: (1) those who pass through the Suez Canal on board pilgrim boats; (2) those who arrive at Kantara, Port Said, and Alexandria, and, having crossed Egypt by land, make for Suez, where they are embarked for the Hedjaz; (3) Egyptians and resident foreigners in Egypt who embark at Suez on Government-hired steamers. Among these three classes are Algerians, Moroccans, Persians, Turks, Bulgars, Russians, Afghans, and Albanians. All the vessels employed for the transit are specifically hired for the outgoing and return journeys, and are under medical surveillance. The council does not approve of such vague diagnoses of death as marasmus, senility, myocarditis, furnished by some ship surgeons, and will try to have this matter made more definite in future. Such diagnoses can well hide the actual fact of death from cholera. While 23,776 pilgrims embarked at Suez or passed through the Canal, by far the greater proportion, 52,408, came by sea via Kamaran; there were also 4,888 who crossed over from Suakim. Indians, Javanese, Kurds, Chinese, Zanzibaris, Senegalis, Afghans, Bokharins, Soudanese, and South Africans from Capetown used the southern sea route. All these pilgrims had submitted to anticholera inoculations. In spite of the general Jennerian vaccination, four vessels which were small-pox-infected arrived at Kamaran. A quaint concomitant of modern conditions lies in the fact that of 40,000 pilgrims who visited Medina (a holy place north of Mecca) before the actual pilgrimage to the Holy City, 25,000 went by motor cars, and only 15,000 by the time-honoured method of caravans.

Supervision of Pilgrims.

From the moment of arrival at the Hedjaz till the return from the Holy Places, the pilgrims were under a complete system of sanitary supervision. This entailed a year of *travail intensif*. Electricians, plumbers, and other workmen, supervised by the chief architect of the Administration, constructed new buildings, houses, isolation quarters, hospitals, and latrines. Plentiful supplies of water were arranged, and disinfecting apparatus and laboratories were established. On debarkation the pilgrims passed to sorting-houses, where their baggage was examined and their linen disinfected by steam; all leather articles were fumigated by formalin vapour, and vessels containing water taken from the Holy Wells were boiled. From these sorting-houses the travellers were placed by lots of fifteen in a disrobing room. Each individual received a small iron box in which to place personal valuables, and, after undressing, was given a linen gown and passed on to the baths. The report gives figures and drawings of the steam-pressure stoves and the methods taken to make the pilgrims as non-infective as possible. Details are also given of the cases treated in hospitals, which were in close touch with bacteriological laboratories. Antimalarial precautions were observed in all the encampments.

Cholera Research at Tor.

A most important part of the report deals with the work of the laboratory at Tor; it is written by Dr. W. Doorenbos, director of the quarantine council's laboratory at Alexandria, who was in charge of the Tor encampment during the pilgrimage. He deals at length with the vexed question of true and pseudo-cholera, and confesses that in spite of all the work already done on the subject there is still much confusion on the diagnosis of the different strains of vibrios. The result of his labours is that he has been able to make certain deductions which will serve as the basis for future work. Of 20,730 stools examined at Tor, the number of vibrio strains isolated was forty-six, of which two were agglutinants and forty-four non-agglutinating. The two former had been inoculated against cholera before their departure for the Hedjaz, while of the forty-four non-agglutinants thirty-nine had evidence on their cards, and in the remaining five this information was uncertain. After describing the methods of isolation and the histological properties of the vibrios, Dr. Doorenbos proceeds to discuss general considerations on the variable morphology and agglutinable characters of the true choleraic vibrio as compared with the pseudo variety. This question has troubled quarantine authorities in India and all over the East. Endeavours have been made to establish the same relationship as between typhoid and paratyphoid, and in the Special Report, No. 51, of our Medical Research Council mention is made of a disease having symptoms like those of cholera, though usually of mild type and followed by a lower case mortality.

> "The vibrios recovered from such outbreaks, though having a general resemblance to the *V. cholera* in their morphology and cultural characters, are serologically quite distinct. These organisms have been termed *V. paracholerae*."

Dr. Doorenbos's comment on this is that if he has a case in which the vibrios present are morphologically and culturally identical with the *V. cholera*, he diagnoses cholera, even if there are some differences in the agglutinating power of the different strains. Because of the forty-six vibrio cases found in pilgrims coming from places related to epidemic centres in India, the whole pilgrimage was considered cholera-infected, and a subsequent case of true cholera at Massowa confirmed the conclusion. While it is admitted that there are no means of bacteriologically determining that a vibrio is or is not that of true cholera, it was decided that in each case where a vibrio is isolated it should be considered suspect. This considerably increases the number of such cases, even although among them will be found degenerated vibrios which are not pathogenic to man. Nor can the haemolytic powers of agglutinating cholera vibrios serve to identify a strain, for, as shown by Dr. Marra at Port Said, some strains that have given proof of haemolysis when examined six months later had lost that power.

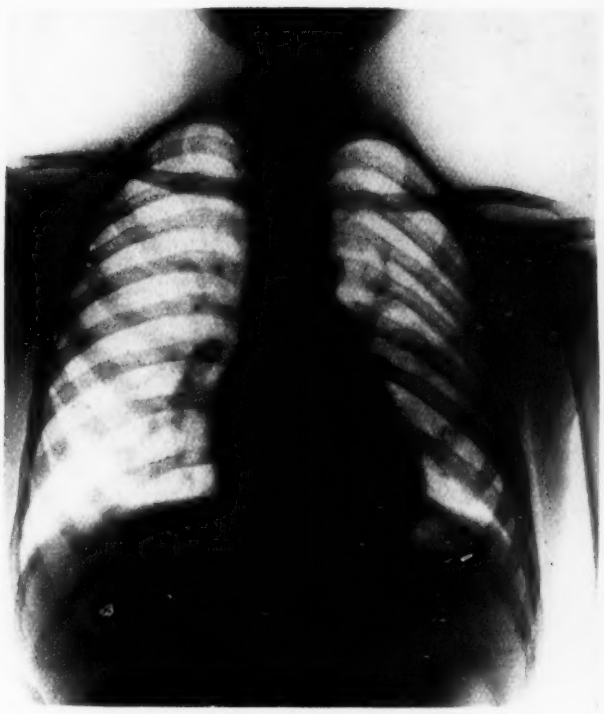
While the report cannot, therefore, be said to bring any new light on this important subject, it summarizes in concise fashion much of the previous work, and adds fresh observations of value. The Egyptian Maritime Sanitary and Quarantine Council is to be congratulated on the comprehensive and efficient way it manages this annual pilgrimage, a cohort of more or less irresponsible and potential spreaders of epidemic diseases from the wide areas of Africa and the Near and Far Orient. A study of the report shows the steady advance which is being made in co-ordinating the work of international public health and epidemiology, and the willingness of different countries to carry out inoculation and other measures to prevent their nationals from embarking as far as possible in other than non-infective condition.

[1] The 1930 Pilgrimage to Mecca. (Conseil Sanitaire Maritime et Quarantenaire d'Egypte: Rapport sur le Pèlerinage de l'année 1930.) Alexandrie: Société de Publications Egyptiennes. 1930.

W. ARNOTT DICKSON: PLEURAL EFFUSIONS IN GENERAL PRACTICE.

Empyema cured by absorption in boy aged 6.

Fig. 1.—May, 1929.



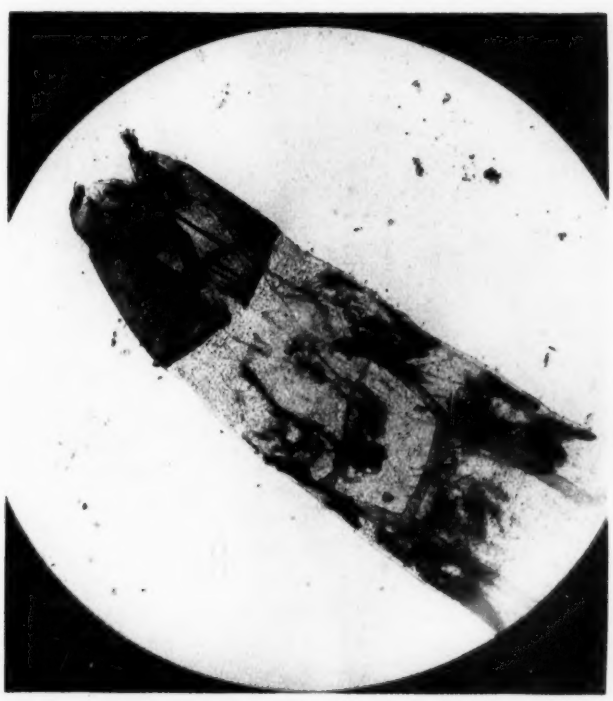
Empyema cured by absorption in boy aged 6.

Fig. 2.—After recovery.

C. ALEX WELLS: APPENDIX CONCRETIONS OPAQUE TO X-RAYS.

X-ray photograph, showing shadow of stone at site of the appendix. (from behind).

J. F. D. SHREWSBURY: A CASE OF HUMAN INTESTINAL MYIASIS.



Microphotograph of the head and anterior segments of the larva of Anisopus (Rhyphus) fenestralis, Scopoli (× 40).

E. LAMING EVANS: CONGENITAL DISLOCATION OF THE HIP

Fig. 1.—Irene W. Left hip. Reduced at age of 4½. 16 years ago.

Fig. 2.—Evelyn M. Left hip. Reduced at age of 5. 11 years ago.

E. LAMING EVANS: CONGENITAL DISLOCATION OF THE HIP

Fig. 3.—Primrose B. Right hip. Reduced at age of 3, 11 years ago

Fig. 4.—Beryl D. Left hip. Reduced at age of 4, 12 years ago.

E. LAMING EVANS: CONGENITAL DISLOCATION OF THE HIP

Fig. 5.—Gladys P. Left and right hips. Reduced at age of 2¼, 12 years ago.

Fig. 6.—Sylvia W. Left hip. Reduced at age of 3¼, 14 years ago.

E. LAMING EVANS: CONGENITAL DISLOCATION OF THE HIP.

Fig. 7.—Phyllis J. Left hip. Reduced at age of 2¼, 20 years ago.

Fig. 8.—Margaret S. Left hip. Reduced at age of 3¼. 20 years ago.

H. A. COOKSON: "FAT NECROSIS" OF THE BREAST.

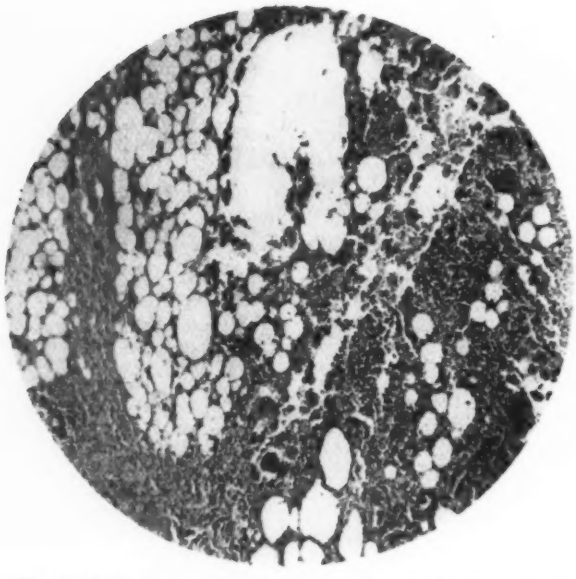


Fig. 1.—Low power (× 50) view of necrotic area, showing fat cells separated by the giant cells and mononuclear cells.

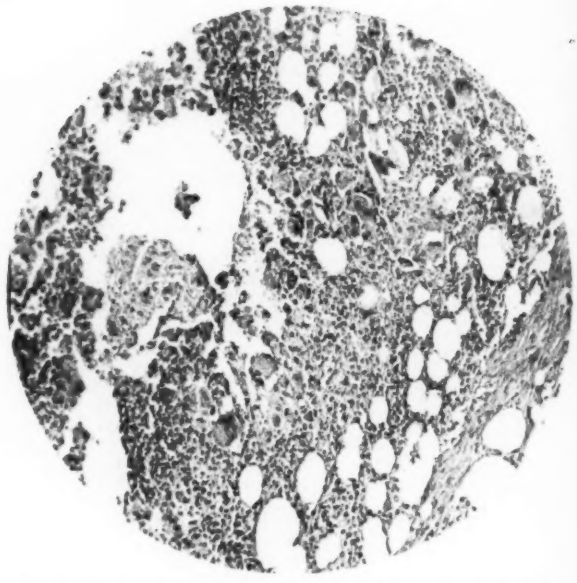


Fig. 2.—Medium power (× 80) view of necrotic area, showing invasion of fat cells by giant cells, etc.

H. A. COOKSON: "FAT NECROSIS" OF THE BREAST.

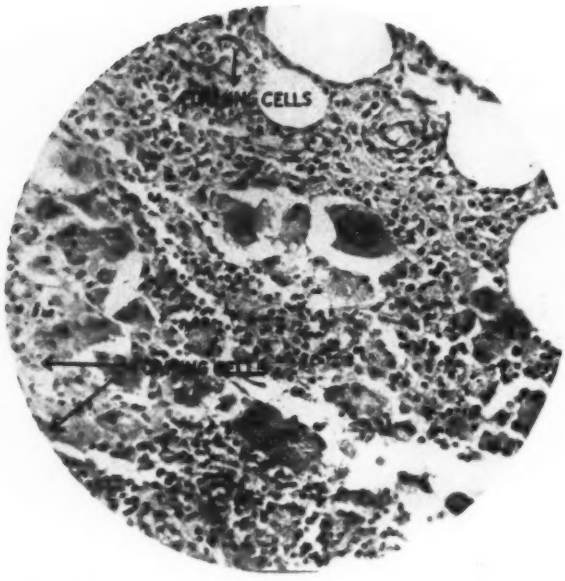


Fig. 3.—Higher power (× 180), showing characters of giant cells and "foaming" cells.

Fig. 4.—Low power (× 15) view through skin and subjacent fascia.

British Medical Journal.

SATURDAY, DECEMBER 20TH, 1930.

RECENT WORK ON YELLOW FEVER.

AT the beginning of 1913 the Secretary of State for the Colonies appointed a commission "to study the nature and relative frequency of the fevers occurring among Europeans, natives, and others in West Africa, especially with regard to yellow fever and its minor manifestations." This commission, under the chairmanship of Sir James Kingston Fowler, lasted for approximately three years, its fourth and final report being dated March 31st, 1916. In the light of recent discoveries it is interesting to refer to the general conclusions and recommendations of that commission embodied in their four reports and also in the volumes dealing with their investigators' reports. Probably owing to the fact that these reports were issued during the war, they have not received the attention they deserve, for most of the recommendations and conclusions of the commission have been abundantly justified by subsequent events. Their conclusions to the effect that yellow fever is an endemic disease on the West Coast of Africa and maintained by the existence of endemic foci, has received a striking confirmation in a recent publication of the Rockefeller Commission in West Africa.[1] Drs. Beeuwkes, Bauer, and Mahaffy, members of this commission, collected samples of blood from the natives of various towns in Nigeria and Sierra Leone, and by means of protection tests in monkeys determined what proportion of the natives had suffered from yellow fever. In the densely populated towns of Ibadan and Ilorin in Southern Nigeria, out of 125 serums collected at random 30.4 per cent. contained immune bodies against yellow fever, and in Ife, where an epidemic had recently occurred, 17 out of 25, or 68 per cent., were protective. On the other hand, on the plateau of Northern Nigeria only 1 out of 90 examined was positive. Similarly in Freetown, where no yellow fever has been reported since 1910, only 1 out of 34 gave complete protection. These observers also found that at least 1 out of every 4 young children in Ibadan and Ilorin had had an attack of the disease, although no child under 5 years ever presented a clinical picture justifying the diagnosis of yellow fever. It is evident, therefore, that this densely populated region of Southern Nigeria constitutes a great endemic centre of the disease, where the native is as saturated with yellow fever as he is with malaria. The infection is maintained among the infants, who constitute the local non-immune population, and on whom the disease seems to have very little effect. Such infected children serve to maintain the infection in the mosquitos, and in this way the disease may persist for long periods without its existence being recognized. With the influx of numbers of non-immunes, such as Europeans or natives from uninfected regions, there is always the possibility of an epidemic being produced, especially when the number of mosquitos is allowed to increase.

The transmission of yellow fever has been the subject of an important paper[2] by Professor Edward Hindle, the Beit Research Fellow in Tropical Medicine, who has been studying this problem at the Wellcome Bureau during the past two years. It has been generally assumed that this disease is transmitted only by the bites of the yellow fever mosquito (*Aedes aegypti*), but experiments in both West Africa and South America have shown that other species of mosquitos may carry the disease. Consequently Hindle suggests that in the endemic centres of West Africa antimosquito campaigns should be directed against all mosquitos indiscriminately. Although, as he has shown, a mosquito once infected generally remains infective for the duration of its life, and in one experiment was still infective 118 days after feeding on a yellow fever patient, no evidence was obtained in support of the view that the infection is transmitted to its offspring. Therefore, by intensive antimosquito campaigns, it should be possible to eradicate the disease from West Africa in the same way as it has been eliminated from North and Central America. A hitherto unsuspected mode of transmission has been brought to light in the course of these experiments. During the early stages of the disease the blood of yellow fever patients is highly infectious, and if the surface of the skin becomes contaminated with such blood, infection may result. Two cases are described in which the patients could have acquired the infection in no other way than by contamination of the skin whilst handling infected blood, and who had never had the opportunity of coming in contact with infected monkeys or mosquitos. One of these patients became infected after merely doing a blood count on another case; therefore, in view of the common occurrence of haemorrhages during the course of the disease, it seems likely that yellow fever occasionally may be spread directly by these means. The danger is probably not very considerable, as the blood often ceases to be infective before such clinical signs as haemorrhages have appeared, but there would be a possibility of hospital staff and attendants acquiring the infection whilst handling patients in the early stages of the disease, and especially during any blood examinations. In the past, all study of yellow fever has been conducted in endemic regions, and any infections have been attributed to the bites of infected mosquitos, but there can be little doubt, in view of these results, that direct infection must have occurred, especially in hospitals. Although the blood of human patients is highly infectious during the early stages of the disease, and may contain up to 100 million lethal doses per cubic centimetre, there seems to be a rapid production of antibodies, even in fatal cases, and as a result the blood generally ceases to be infective by the third or fourth day of fever, and sometimes earlier. Consequently there is little risk of acquiring the infection when performing necropsies on human yellow fever cases; but in monkeys, owing to the more rapid course of the disease, this is not so, and the blood and tissues are often infective at death.

The main facts governing the transmission of yellow fever now seem to be fairly well established, but hitherto, as in the case of all diseases due to ultramicroscopic viruses, specific chemotherapeutic treatment has entirely failed. With the object of finding some efficient treatment for the disease, G. M. Findlay and E. Hindle[3] have been studying the changes in the course of yellow fever, and found they showed a close similarity to those occurring in other conditions involving liver necrosis, such as carbon tetrachloride, chloroform, or arsphenamine poisoning. One of the most striking changes in these cases is an increase in guanidine-like substances in the blood, and the toxic symptoms associated with guanidine

[1] *Amer. Journ. Trop. Med.*, x, 305-333.
[2] *Lancet*, October 18th, 1930.
[3] *Lancet*, September 27th, 1930.

poisoning present certain resemblances to the symptoms observed in yellow fever patients. Analyses of the blood of monkeys infected with yellow fever showed that the guanidine content increased to approximately double the normal quantity. The increase could be reduced to normal by the administration of calcium lactate, but it was necessary to give repeated injections because the effect of the calcium did not last for more than a few hours. It is disappointing to have to record that in spite of this apparent success, calcium lactate did not prevent death in the monkeys suffering from yellow fever, although it did tend to prevent haemorrhages, and is evidently of some value in the treatment of the disease.

METABOLISM OF TUMOURS.

IT is now seven years since Professor Otto Warburg began his researches on the metabolism of tumours. In the interval he has published a number of papers on that subject, and it must have been the experience of many of those who followed the account of his investigations that the precise significance of his results was not realized without some difficulty. A short, final article of two pages, however, which he published in 1929, removes all obscurities when read in conjunction with the previous articles. The publication of the whole series in a single volume was subsequently undertaken, and an excellent translation of this work—*The Metabolism of Tumours*—has now been provided by Dr. Frank Dickens.[1]

One of the recognized characteristics of tumours is irregular growth; it was Professor Warburg's task to construe the latter in terms of irregular metabolism. The sources of growth-energy being oxygen and carbohydrate, utilized respectively in the processes of tissue respiration (oxidation) and fermentation (glycolysis, or the splitting of carbohydrate into lactic acid and CO_2), the research consisted in ascertaining and comparing the quantitative variations of these two processes in normal and tumour tissue, and in defining the mutual relationship, if any, existing between them. The twofold function is inherent in all cells, actually or potentially. A full description of the technique employed is given in Professor Warburg's book; it is sufficient to state here that the amount of respiration is measured by the amount of oxygen absorbed by a given weight of tissue in a given time, and the amount of glycolysis by the quantity of CO_2 produced. By saturating the culture medium with nitrogen, and thus excluding oxidation, it becomes possible to study the glycolytic function in isolation (anaerobic glycolysis). By this means it is found that all tissues possess a potential glycolytic function, varying in amount in proportion to the proliferative activity of the cell at the time of observation. In stationary connective tissue it is barely recognizable; in non-malignant tumours it is moderate in amount; in rapidly proliferating tissue it is abundant, as in the embryo and malignant tumours, which exhibit a practically identical glycolytic activity.

Thus, as regards the amount of potential glycolytic function, Professor Warburg finds nothing abnormal in tumours; it is that of normal tissue in a corresponding condition of proliferative activity. As regards the mutual relationship of the two processes within the cell, oxidation appears to predominate over, and as a rule suppress, glycolysis, which, however, is always resorted to under conditions which exclude oxidation. An observation of Pasteur's furnishes a good example of the suppression of the glycolytic function by oxidation; he showed that yeast fermenting under anaerobic conditions relinquishes the glycolytic function on the admission of oxidation, thenceforward deriving energy from the latter. There are, however, exceptions to this rule of suppression; instances are met with in which glycolysis is present in association with oxidation (aerobic glycolysis), and it would appear from this fact that the dominating influence of oxidation is not direct, but is exercised through some intermediate chemico-physical reaction ("Pasteur reaction" Warburg proposes to call it), which may, on occasion, be absent, and the failure of which renders the influence of oxidation on glycolysis nugatory. If this reasoning is correct, the simultaneous existence of the fermentative and the oxidative processes in a tissue indicates that there is a disturbance of the function of tissue respiration—the oxidative process is unable to proceed on normal lines. Professor Warburg has shown that tumour tissue exhibits this aerobic glycolysis, and therefore concludes that its respiratory function is irregular. Aerobic glycolysis is, however, by no means specific for tumours; it may be induced in normal tissues if suitable means are taken to obstruct oxidation, as Warburg has shown in several of his experiments. But there is a marked difference between the behaviour of normal tissue and that of tumours in these circumstances; normal cells inevitably die, while the cells of tumours not only survive, but are able to grow to an unlimited extent, turning to account the chemical energy of glycolysis. This power of survival under the condition of aerobic glycolysis is therefore the essential characteristic of tumours, as compared with normal tissue and as regarded from the point of view of metabolism.

It may be asked what light these researches throw on the problem of the causation of tumours. It has been mentioned that the degree of glycolytic activity is found to vary in proportion to the rapidity of tissue growth; glycolysis, actual or potential, therefore appears to be closely connected with growth. To conclude from this fact, however, that the assumption of a glycolytic type of metabolism is the cause of tumour formation would obviously involve the danger of falling into a logical fallacy. Tumour formation may be due to quite other causes, which may conceivably bring aerobic glycolysis in their train. The researches do not, in fact, bear directly on the problem of causation; but they have added an important detail to our knowledge of the peculiar features of tumour growth—a valuable acquisition, since it opens up a new avenue of approach in the study of the causation of tumours.

[1] *The Metabolism of Tumours.* Edited by Otto Warburg. Translated from the German edition, with accounts of additional recent researches, by Frank Dickens, M.A., Ph.D. London: Constable and Co., Ltd. 1930. (40s. net.)

EARLY LABORATORY DIAGNOSIS OF TYPHOID FEVER.

IT is common knowledge that the Widal test, as ordinarily performed, fails to give a positive result in some cases which seem clinically to be of enteric fever. According to Dr. A. D. Gardner of the Standards Laboratory, Oxford, whose work is discussed in the last annual report of the South African Institute for Medical Research,[1] investigations by Malvoz (1897), Smith and Reagh (1903-4), Wright (1903, 1918), Arkwright (1921), Weil and Felix (1921), Andrews (1922), and others, have all contributed to the recognition of one reason for this failure—namely, the fact that there exist non-motile strains of the typhoid bacillus. It is now well known that a typhoid fever serum which successfully agglutinates non-motile bacilli may fail

[1] Annual Report for the year ended December 31st, 1929. Johannesburg. 1930.

agglutinate the motile organisms ordinarily used in carrying out the Widal test. The non-motile strains possess what is now termed the "O" type of antigen, and accordingly produce "O" agglutinins only; the motile bacteria, on the other hand, possess two kinds of antigen, termed "H" and "O," which stimulate the production of both types of agglutinin. Recently, Felix has elaborated a qualitative method for demonstrating agglutination of one or other type in the serum of enteric cases, and confirmation and extension of his work have been recorded by Gardner and Pijper. Gardner believes that if inoculation can be excluded the "O" agglutination diagnostic test need be applied only when the ordinary "H" test has given negative or doubtful results. It may also be used in the early or late stages of cases in which a diagnostic "H" test has failed to develop, or, having done so, has disappeared. It is not possible, however, by the "O" agglutination test to identify the infecting species, for the "O" substance is not specific. In the experience of the South African Institute for Medical Research a further reason for the failure of the Widal test lies in the fact that a number of the specimens of blood or serum submitted for Widal testing have been taken from patients during the first week or nine days of the illness, a period in which blood culture offers a surer means of diagnosis. In many cases, however, the practitioner finds it far more difficult to collect blood for culture than for Widal testing, and this difficulty has probably stood in the way of the more extensive use of the blood culture method. Recognizing this possibility the institute has been supplying on request small rubber-capped bottles containing sterile ox bile, the advantages of which as a culture medium are that the typhoid bacillus flourishes in it to the exclusion of contaminating organisms that may be introduced fortuitously. Experiments have shown that typhoid bacilli may be isolated from this medium even when it has been inoculated with no more than 0.2 c.cm. of blood from a typhoid patient. Evidence is accumulating at the institute that the dual method of arriving at a diagnosis may be applied to specimens collected even in the early stage of typhoid infection. The procedure adopted is to withdraw the separated serum for agglutination tests and then to introduce the clot into tubes containing ox bile. Positive cultural results have been obtained in this way from specimens collected between the fifth and ninth day of illness by practitioners living a long way from the laboratory. In such cases the institute has adopted the practice of reporting first the result of the agglutination test and then, a few days later, the result of the cultural test.

MEDICAL RESEARCH IN HAMBURG.

FOR some reason the facilities offered in Hamburg as a medical centre are insufficiently known in Great Britain, so that study tours to Germany seldom include a visit to a university city which is actually nearer and more accessible to this country than Berlin, Munich, or Heidelberg, to name a few favourite centres. In a recent volume[1] dealing with the whole question of research institutes, compiled by many authors, Professor Ludolph Brauer describes the medical research work carried on at the large Eppendorf Hospital in Hamburg, where 3,000 beds, distributed in many pavilions, offer remarkable clinical opportunities. The receiving wards are visited twice daily by a member of the staff, who allocates the patients to the various departments of the hospital; by attending these visits the investigator of any particular problem is kept in close touch with the available clinical material. Laboratories for all aspects of medical research are in close contact with the wards, and the clinical workers in the various departments are almost as much at home in the laboratory as in the wards. The special departments available for the study of particular problems are many. The German Research Institute for Tuberculosis stands in close proximity to the wards set apart for pulmonary tuberculosis and other lung diseases. Here "working places" are available on lines similar to those at the zoological station at Naples, for example, and investigators can obtain expert guidance in their work. In order to study the many problems of climate, high altitudes, air, etc., connected with the treatment especially of lung disorders the Eppendorf Hospital has lately added two elaborate "pneumatic rooms" to its research equipment. Each of these completely air-tight rooms has a floor space of 12 by 15 feet and is 9 feet high. The walls are strongly built with steel rods to reinforce the brickwork, and a pressure of three-quarters of an atmosphere above or below normal can be safely withstood. Strong pumps can produce this change of pressure, if necessary, in twelve minutes, and it is arranged that a stream of nearly 500 cubic metres of filtered dry air can be circulated through each room every hour. Air-locks through which food can be passed into the room, telephone communication between the occupants of the rooms and those in charge of the apparatus, and careful control of the temperature and water-vapour content of the air by means of electrically recording thermometers make these pneumatic chambers valuable additions to the scientific resources in Hamburg, both for treatment and scientific investigations. Institutes for cancer research, for the investigating of problems of light, for clinical pharmacology and for colloidal biology, deal with special aspects of medical research. A well-equipped diet kitchen in a modern building, with two large and several small wards, analytical laboratories, metabolism laboratories, etc., afford great opportunities for the study of metabolic problems. The daily diet of between 100 and 120 patients is carefully prepared according to scientific standards, and lecture courses in dietetics are held for doctors, nurses, and students. The surgical treatment of diseases of the lungs can be studied particularly well in a hospital directed by such a pioneer in this subject as Brauer, and thoracoplastic work can be followed in its various aspects. The Eppendorf Hospital has many well-known names connected with its staff; a bust of Curschmann stands just within the entrance gates, not far from the dermatological clinic which Unna used to direct. The names of Nonne in the neurological, Fahr in the pathological, and Much in the tuberculosis departments are universally known. Professor Brauer's account of the research departments and hospital which he directs makes it clear that here is a well-organized unit; in it clinical research is the normal method of work, because the clinicians have a strong scientific background, and the laboratory workers are always close to clinical material.

[1] *Forschungsinstitute, ihre Geschichte, Organisation und Ziele.* Edited by L. Brauer, A. M. Bartholdy, and A. Meyer. Hamburg: Paul Hartung. 1930.

PROPOSED INTERNATIONAL SCHOOL OF HEALTH STUDIES.

THE French Government continues to show a praiseworthy initiative in encouraging what some would call the incidental or contingent activities of the League of Nations. It was on the suggestion and with the help of the French Government that the International Institute of Intellectual Co-operation was established in Paris a few years ago; recently, the French Government has made another proposal, which, however, has yet to be ratified by its Parliament—namely, that there should be established in Paris, under the direction of the Health Committee of the League, an international school of advanced health studies. The school, if it materializes, will be maintained by an annual grant of a million French francs (rather more than £8,000), and its object will be to meet the need for an institution where knowledge of the best modern practice and research work

may be obtained and the methods of different countries compared. The suggestion really arises out of the organization by the League of Nations of the very useful system of interchanges or study tours for public health officials, whereby the officials in one country have been enabled to see what other countries are doing in the same or parallel fields. In connexion with these interchanges, courses of study have been organized in London and in Paris, where instruction has been given by teachers from a number of countries, and the value of these experiments has been so evidently proved that a demand has arisen for something more permanent and systematic, whereby all national health administrations choosing to do so could benefit by each other's knowledge and experience. The school will also afford an opportunity for directors of schools of public health in different countries to meet regularly and to discuss their common problems. Both the teachers and the students of the school will be picked men and women drawn from different countries; it is expected that the students will generally be selected by their national authorities, and that in due course various scholarships and subsidies will become attached to the international school. The courses will lay emphasis upon a comparison of the practice in various countries with regard to health matters, and the points of divergence. There will be field work and discussion groups as well as lectures. The theoretical programme will be divided into three principal branches—namely, comparative general hygiene, an outline of the fresh knowledge acquired in the sphere of health and of related sciences, and the organs and method of international health co-operation. The framing of a plan for the school was one of the chief pieces of work at the meeting of the Health Committee of the League of Nations at Geneva in October. The Health Committee, whose members will compose the governing body of the school, with a director appointed by the French Government, has recently, by the way, been reconstituted and enlarged. Its members, who are appointed for three years, now number twenty-seven. The president is Dr. Madsen of the Danish State Serum Institute. The single vice-president hitherto has been M. Velghe, formerly secretary-general of the Belgian Ministry of the Interior and Health, but three new vice-presidents have just been elected, one of whom is Dame Janet Campbell of the British Ministry of Health, and the others are Dr. Heng Liu, the Chinese Minister of Health, and Dr. Cantacuzene, director of the Bucarest Institute of Experimental Medicine. In the general body of members Great Britain is represented by Sir George Buchanan, senior medical officer of the Ministry of Health; the United States by Surgeon-General H. S. Cumming, director-general of the Public Health Service; Canada by Professor J. D. Fitzgerald, director of the School of Public Health of the University of Toronto; and India by General J. D. Graham, public health commissioner of the Government of India. Fourteen other countries are also represented by principal health officials.

BENVENUTO CELLINI.

BENVENUTO CELLINI'S celebrated autobiography has more than once attracted the attention of medical historians, such as Sir D'Arcy Power and Professor Castiglioni, as it serves to illustrate the close relationship between art and medicine in Italy during the sixteenth century. In a handsome quarto entitled "From the Medicine of the Renaissance"[1] Dr. Paul Strassmann, extraordinary professor of obstetrics and gynaecology at Berlin University, has recently drawn attention to the passages of medical interest in Goethe's translation of Cellini's life. Cellini's medical attendants included Berengario da Carpi, the well-known surgeon of Bologna, and Guido Guidi or Vidus Vidius, [illegible] Florentine surgeon and anatomist who has given his name to the Vidian canal and nerve. Cellini's own medical history is not without interest. There is no doubt that he had several attacks of malaria, which was then very prevalent in Rome, and as Signora Celli has recently shown, accounted for the deaths of several Popes. He also contracted what was known as brassfounder's ague during his execution of the statue of Perseus at Florence. Another febrile attack, accompanied by delirium, from which he suffered for several weeks, may possibly have been typhoid fever. On two occasions attempts were made to poison him, once with crushed diamonds without any effect, and on another occasion with arsenic, which nearly cost him his life. In spite of the suggestive skin eruption (for which he was treated with guaiacum), and the later eye troubles following Cellini's relations with a model, Dr. Strassmann thinks it doubtful if the disease was syphilis in view of the fact that no further symptoms developed and that he became the father of a healthy child in the seventh decennium. Like Castiglioni and Vierordt, Strassmann thinks that there are no grounds for regarding Cellini as guilty of homosexual practices, as some authorities, such as Magnus Hirschfeld, have done.

[1] *Aus der Medizin des Rinascimento.* An der Hand des "Leben von Benvenuto Cellini" nach der Übersetzung Goethes. Von Dr. Med. Paul Strassmann. Leipzig: G. Thieme. 1930. (M.13.)

DWINDLING INCIDENCE OF PIRQUET REACTIONS IN SCHOOL CHILDREN.

J. USTVEDT has investigated, and found to be correct, the teaching that the incidence of Pirquet reactions in school children in Norway has shown a remarkable decline during the past fifteen or twenty years.[1] In 1914 Arnfinsen carried out Pirquet tests in Trondhjem on 80 per cent. of the children attending the primary schools. The author has repeated these tests in the same town, checking the reaction after forty-eight hours and regarding as positive a redness or a palpable infiltration at this stage. Of the 7,000 school children in the town 4,719 (67.5 per cent.) were allowed by the parents to be thus tested. The incidence of the positive reactions rose uniformly from 8 per cent. at the age of 7 to 40.5 per cent. at the school-leaving age of 15. Of all the 4,719 children, 1,116, or 23.5 per cent., gave a positive reaction. There was no sex difference between the ages of 7 and 10, but later the incidence of positive reactions was a trifle higher for the boys, and at the age of 15, 43 per cent. of the boys, and only 37.5 per cent. of the girls, showed a positive reaction. Arnfinsen's investigations indicated that the frequency of positive reactions rose uniformly from 24 per cent. at the age of 7 to 60.5 per cent. at the school-leaving age. Arnfinsen found 37.8 per cent. of all the school children Pirquet-positive, whereas Ustvedt reports a reduction in this rate to 23.5 per cent. The difference between the two investigators was greatest in the case of 15-year-old girls, Arnfinsen finding 65.8 per cent. to be Pirquet-positive, and Ustvedt only 37.5 per cent. Since the two series of investigations were conducted with an identical technique and on the same kind of material, it may be safely assumed that during the past fifteen years there has been a considerable postponement in the average date of infection, 20 per cent. less of the children pass infected into the dangerous years of adolescence than was the case in 1914. This achievement can probably be traced to the energetic measures taken in the interval to withdraw infected cases from contact with children. There would seem to be no risk in thus deferring the date of infection from the years of childhood to those of adolescence: for side by side with an increase in the proportion of Pirquet-negative reactions in childhood there has been a diminution of the tuberculosis mortality and morbidity in Trondhjem. While in 1914 4.4 per 1,000 of the population of Trondhjem were

[1] *Tidsskr. f. d. Norske Laegeforening*, November 1st, 1930, p. 1187.

notified as tuberculous, this ratio was reduced to 3.5 in 1929. The incidence of tuberculous meningitis in children under the age in Trondhjem fell from 3.2 per 1,000 in the period 1910–15 to 1.4 per 1,000 in the period 1921–25. In the case of 521 children, tuberculosis had been notified in the 371 homes from which they came; but only in 274 of these children (52.5 per cent.) exposed to infection was the Pirquet reaction positive. Even when the children came from homes in which a sputum-positive case had been notified, as great a proportion as 31 per cent. of them were Pirquet-negative. Sometimes, when there were two or more children in one and the same tuberculous family, some of the children were Pirquet-positive and others Pirquet-negative. The author compares this state of affairs with the observation that even artificial inoculation with B.C.G. does not invariably provoke a positive Pirquet reaction. The subsequent fate of children living in tuberculous surroundings does not seem to be affected by the nature of their Pirquet reaction at any given date; for of the 444 children from tuberculous surroundings examined by Arnfinsen in 1914, 37.5 gave a negative reaction. Of these 167 children, 13, or 7.8 per cent., were subsequently notified as suffering from tuberculosis. Of the 277 giving a positive reaction in 1914, 22, or 7.9 per cent., were subsequently notified as tuberculous.

ORIGIN OF THE HUMAN SKELETON.

DR. ROBERT BROOM, although trained as a medical man, has spent the greater part of his professional life in studying the fossil fauna of South Africa. The fauna is a very ancient one; its fossil remains are dug from rocks of the Permian, Triassic, and Jurassic Ages, and preserve evolutionary stages which preceded the appearance of the true mammals. The highest vertebrates were then reptilian in type, but many of the reptilian forms of South Africa were undergoing changes which heralded the dawn of the mammalian type. Certain modifications of structure were being effected which have still an interest for medical men. In diverse genera the mammalian form of palate was being evolved—forming a roof for the mouth and a floor for the nasal cavity. In every human child this same process occurs during development; failure gives rise to "cleft palate." Another marvellous change was the establishment, on the base of the skull, of a new joint for the lower jaw. Dr. Broom has succeeded in finding only the preliminary steps which led on to the separation of the old articular head of the lower jaw to form the hammer of the ear and the outgrowth of bone to form a new mandibular condyle. In the present study[1] the lore gained in the examination of this ancient fauna has been applied to elucidate the human skull and skeleton. Although a period of 200 millions of years—the estimate is Dr. Broom's—has elapsed since these mammalian-like reptiles had their day in South Africa, yet much of what was theirs has been handed on and become the heritage of man and ape. The student of anatomy may be consoled by the knowledge that the human skull is much simpler in its structure than was the highest form of skull in the Triassic period. Eight bones, which were separate in the ancient Theromorphs, have been enrolled in the human sphenoid bone; their orbit had in its circuit six separate bones; compared with that of man's Theromorphic ancestor the human bony palate is a simple structure. Even in the earliest reptilian forms, however, the tarsus and carpus had much the same constitution as still persists in the hand and foot of man. Dr. Broom has an interesting and original story to tell, and makes it so intelligible, by the aid of simple drawings, that a first-year medical student should find no difficulty in following all the details of his argument.

[1] *The Origin of the Human Skeleton.* By R. Broom, D.Sc., F.R.S. London: H. F. and G. Witherby. 1930. (10s. 6d. net.)

PUBLIC ASSISTANCE ORGANIZATION.

IT is very desirable that knowledge of the new machinery which has superseded that of the old boards of guardians for the administration of the Poor Law should be as widespread as possible. In the large area of the London County Council this new machinery has been the subject of much careful thought, and it is now in established working, and of course affects a relatively large proportion of the total population which is in need of public assistance. A small pamphlet entitled *The New Public Assistance Organization of the London County Council*,[1] by Lewis Silkin, a member of that Council, is therefore timely in its publication and worthy of attention. It has a foreword by the Right Hon. George Lansbury, M.P., First Commissioner of Works, and is published under the auspices of the London Labour Party. It is not, therefore, wholly free from party bias, but an attempt is made, in the main successfully, to avoid the discussion of questions of policy, and to restrict the pamphlet to giving the reader sufficient information to enable him to appreciate the effects of the important change which has now taken place in the administration of public assistance within the County of London. Many medical practitioners, both in London and elsewhere, should appreciate an exposition so brief and so clear as that which this pamphlet affords. It sets out in an admirable manner the extent and nature of the work done under the old regime and the way in which it is being consolidated and redistributed under the authority of the London County Council. A few concluding paragraphs contain observations of a more general character as to the effect and intentions of the new administration, and one or two of these may be of special significance. It is known that the Labour party is generally not in favour of co-option on to the committees of local government authorities. There are strong grounds for concluding that this is a mistaken attitude. In view of the extent, variety, and complexity of the problems with which such authorities have to deal, it seems clearly advantageous to enlist, to a modest extent in committee work, those who have expert knowledge, experience, and skill in particular spheres, but who do not wish to plunge into public work of a wider character. In Mr. Silkin's pamphlet it is acknowledged that "provided such persons are carefully selected and are prepared, in addition to making a sacrifice of their time, to undergo the education and training which is essential for all persons who desire to take part in public life, then the advent of an increased number of presumably public-spirited persons in the civic life of London can hardly be without its advantages." It is bad selection which is probably at the bottom of such real dissatisfaction as at present exists. Where the prime consideration is either narrow party advantage or questions of mere relationship or friendship failure may easily result, but there can scarcely be any county or county borough in which there is not sufficient selection from those who not only have the requisite knowledge and experience, but also have actually had in some form that training in public life which Mr. Silkin very properly postulates as necessary. Again, it is said, "persons seeking assistance who are admittedly too old for work and without means of subsistence should be provided with assistance outside the Poor Law altogether, and if possible through a committee of the Council specially set up for the purpose." It is common ground that the ultimate goal is the breaking up of the Poor Law, so that those who need public assistance on special grounds shall be dealt with appropriately, but surely the class named are exactly those for whom the public assistance committee should be most concerned, and who should be its foremost consideration.

[1] London Labour Publications Ltd., 258, Westminster Bridge Road, S.E.1. (2d.)

CONFERENCE ON MENTAL WELFARE.

A VERY largely attended conference was held, under the auspices of the Central Association for Mental Welfare, in the Great Hall of the British Medical Association House, Tavistock Square, on December 11th, 12th, and 13th. It was opened by the Right Hon. ARTHUR GREENWOOD, the Minister of Health, who expressed the hope that voluntary associations would do much useful work in the administration of the Mental Treatment Act. Without the completest harmony between the State, the local agencies, the medical profession, and the voluntary associations, administration could never be effective. The Right Hon. Sir LESLIE SCOTT, president of the convening association, described the Mental Treatment Act as the most important step forward in the establishment of a preventive mental health service in this country, and indicated its three great salutary provisions: out-patient clinics, the provision of beds for temporary patients in general hospitals, and the admission of voluntary patients to mental hospitals. The first of these provisions would bring for the layman, and he hoped for the general practitioner as well, the treatment of mental illness into the same category as the treatment of physical illness.

Problems under the Mental Treatment Act.

The first subject for discussion at the conference, under the chairmanship of SIR LESLIE SCOTT, concerned the developments in mental health work under the Mental Treatment Act, 1930. It was opened with two papers, the first by Sir WILLIAM HART, town clerk, Sheffield, who, in the course of his remarks, urged some considerations of economy. The constant demand for expenditure upon new or extended social services, coupled with stringent times as regards finance, made it very difficult for local authorities to contemplate expenditure on a large scale on such matters as new institutions. While everything would be done to secure the fullest provision of opportunities for preventive treatment, and to further in all respects the aims embodied in the Act, many of those concerned were yet compelled by reasons of finance to ask that progress might be slow because of financial stringency. The second paper was by Dr. A. T. W. FORRESTER, medical superintendent, Warwick County Mental Hospital, who discussed the development of out-patient clinics. He gave reasons why the mental hospital staff must, in his opinion, be associated with the clinic. The treatment of mental disorders in this country was in the hands of quite a small number of medical men, most of whom were on the staffs of the public mental hospitals. Outside the hospital, at the clinic, they would see chiefly the same patients, but in the earliest stage of their disorder, and this was the stage at which those who were largely concerned with the mental health of the community wished for the opportunity of beginning treatment. Surely, also, it was highly desirable that there should be continuity of treatment between the out-patient clinic and the admission hospital, and to ensure this it was vital that the staffs of the two units should be closely interrelated, if not identical. As to the three possibilities for the site of the clinic—namely, the general hospital, the municipal hospital, and the mental hospital, he thought there was only one answer—namely, that the general hospital was the most preferable site. The clinic would also form a very useful centre where discharges from the mental hospital could report from time to time.

Dr. E. R. FOTHERGILL urged strongly that the treatment of mental illness should be brought into line with the treatment of all physical illness, and that if the service was to be a successful one, just as in the case of physical illness, the treatment of mental illness should be founded on the general practitioner, the private consultant, and the medical officer of the mental hospital. Admission to the consultation department of a voluntary hospital should be through the general practitioner, to whom a report should be sent, with a recommendation as to the form of treatment if the patient was not considered suitable for admission. There was a question whether the whole-time medical officer—that is, the superintendent of the mental hospital—was the most suitable person to be in charge of the consultation department. The knowledge of such an officer concerned rather the end-results of illness, and not present its commencement. It should be kept in mind that if a whole-time superintendent of a mental hospital were appointed as medical officer of the consultation department, where he gave his services free, he would be at once in competition with the private consultant in this branch of medicine, and the latter would be deprived of the means of keeping his education up to date, and of the remuneration which he had a right to expect to receive from the hospital, whether voluntary or council.

The Staffing of Out-patient Clinics.

Mr. L. G. BROCK (Chairman of the Board of Control) referring to the two questions which had come up in the course of the discussion—namely, as to where the out-patient clinic should be and where the admission hospital should be—said he was inclined to agree with one speaker that the superintendents of mental hospitals were too modest about their own claims. It must be recognized that outside a few of the largest urban areas and the areas of the large voluntary hospitals with neurological wards, there were really not in this country any men, other than the members of the staffs of mental hospitals, with any considerable experience in psychological medicine or in dealing with cases of mental disorder. Whatever improvement there might have been in the medical curriculum in recent years, the medical student had lamentably little opportunity of studying cases of mental disorder. It was to the staffs of the mental hospitals that one must look to find the men who had made a special study of this work; they were the experts, and he could not see why the fact should not be admitted. That was why he wanted to see the superintendents and staffs of the mental hospitals associated with the out-patient clinics. But while it seemed essential to the success of the out-patient clinic that it should be staffed in the main by men who came from the public mental hospitals, at the same time he was very anxious to break down the barrier which had existed in the past between psychological and general medicine. He wanted to see the out-patient clinic staffed by the medical superintendent and his assistants, but he wanted to see it at the voluntary hospital, and, in return, to see the consultants of the voluntary hospitals becoming the consultants of the mental hospitals. The more interchange that could be got between the two the better. One great reason why the out-patient clinic should be at the voluntary hospital was because the condition precedent to any success was to secure the confidence of the patient, and he was sure it was easier to get him to go to a voluntary hospital at the earliest stage of his malady than it would be to get him to go to a mental hospital. It was also well to bear in mind that the people concerned were suffering not only from mental illness, but in a great many cases from physical illness also, and, however well equipped the mental hospital might be, there must be better resources in the voluntary hospital for dealing with ordinary sickness. He totally disagreed with one speaker, however, who had stated that the voluntary hospital was the proper place in which to have the admission unit. The voluntary hospital might well be the best place for certain borderline cases which should go to the neurological ward, and for certain cases complicated by physical symptoms, but the great majority of admission cases should be handled in the mental hospital itself.

Dr. THOMAS BEATON (medical superintendent, Portsmouth Mental Hospital) said that there was no reason why the out-patient clinic should not be worked in the closest co-operation with the general practitioner. His experience had been that general practitioners were only too ready and anxious to get opinions on their cases, and he could assure any general practitioner that he would not suffer in the slightest degree from the advent of the clinic. There was no reason why the general practitioner should not follow up his cases, and he wished that he would take a little more interest in his patients after their admission to the mental hospital. The difficulty was to get the general practitioner to come. It had been said that medical superintendents of mental hospitals were quite

unfitted to tackle the difficult problem of mental deficiency. This he strongly controverted. The medical superintendent had constantly to deal with the problem of abnormal conduct, and he saw very grave danger in separating the two branches of the work, the one relating to mental deficiency and the other to lunacy. Both required the same type of investigation, and although the cases needed different handling afterwards they had to be differentiated and sorted out in the first place.

In some further discussion, Dr. COLSTON WILLIAMS pointed out that there was a large class of the community who were suffering from a sick mind, which was neither a disease for the asylum nor a manifestation of mental defect. He welcomed Dr. Fothergill's suggestion that there should be developed within the medical profession people who had a knowledge of psychiatry for dealing with these cases.

Causation and Prevention of Mental Deficiency.

The subject for discussion on the second afternoon of the conference was "The need for an inquiry into the causation and prevention of mental deficiency." Sir BASIL BLACKETT occupied the chair.

Dr. R. LANGDON-DOWN, in introducing the subject, said that, from certain points of view, a Government inquiry might be the best form of machinery for arriving at more exact knowledge of the nature and causation of the various types of mental deficiency and of the operation of heredity in relation thereto, but such an inquiry had some drawbacks as a scientific instrument, and was apt to be inconclusive by reason of the tendency to temper truth with policy. The request for a Government inquiry had been associated with the proposition that all legislative measures in regard to sterilization should be postponed until the findings of the inquiry were issued. If it were intended to pass into law a policy of compulsory widespread sterilization forthwith such an attitude might be justified, but what was now proposed by the Eugenics Society was that it should be made lawful for medical practitioners to carry out simple sterilizing operations with the consent of the person or, in certain cases, with the consent of his or her parents or guardians, but only under such safeguards as might be necessary to prevent the improper use of such methods. Such a proposal did not involve the assertion that there was no need for further inquiry: on the contrary, if adopted without unreasonable delay, it might provide the inquiring body with evidence about the procedure which, so far as this country was concerned, was not available at present. He maintained that the recent inquiry by the Wood Committee justified a cautious and tentative move forward on the lines suggested by the facts which the Wood Report had brought forward. The Wood Report stated: "If it could be proved that sterilization could be safely and profitably applied, even to certain groups of categories of defectives, the question of its adoption would no doubt deserve attention." But obviously such proof could only be obtained as the result of trial, and yet the trial could not be made until the procedure was sanctioned by law. He held that arguments pointed strongly to the transmissible nature of the condition and to its origin in heredity rather than in environment. As for segregation, this could only be applied to one-third of all certifiable defectives, and he urged sterilization, not as a substitute for, but as a supplement to, segregation.

Dr. C. P. BLACKER, supporting the proposition advanced by Dr. Langdon-Down, said that people were apt to approach the question of causation with certain preconceived opinions. People holding Labour sympathies were extremely reluctant to admit that any form of social inferiority could be due to intrinsic causes; they regarded all such inferiority as the product of environment. The other extreme was taken by people who believed strongly in inheritance and the potency of innate characters; these were people who themselves came of distinguished families, and of whose record the individual was proud. Between these two extremes came the bulk of public opinion. The question of prevention was a more thorny one, and he believed that in a short time there would be a very intensive campaign against sterilization, conducted by sincere and able leaders of the Roman Catholic Church. Any committee or commission would necessarily have to go into great detail, and its inquiry would take a long time. Meanwhile he would point out that the means of prevention suggested by the Mental Deficiency Committee—namely, segregation and prohibition of marriage—were inapplicable to what might be called the social problem group, and that the only method at present available for limiting the fertility of that group was sterilization. Sterilization might prove to be a remedial measure not only for primary amentia, but also for secondary amentia due to injury before birth, owing to attempts at abortion, or to injury at birth or in early infancy. What the Eugenics Society proposed was that eugenic sterilization under proper safeguards should be at once legalized. He thought the safeguards would be quite sufficient, seeing that the Board of Control would never give its consent to the sterilization of a defective unless there were excellent reasons for doing so. So long as that sanction held good, he thought that abuses would be non-existent. He added that the Eugenics Society had prepared a bill on the subject.

The Case against Sterilization.

Dr. A. F. TREDGOLD, who spoke in opposition to what he described as "this plausible remedy," said that it was not without interest to consider that the demand was no longer for the wholesale sterilization of all defectives; it was simply to be an experimental measure for a selected group. What was sterilization going to do towards the prevention or lessening of mental defect? The general public were under the impression that if only sterilization were adopted, mental deficiency would be eliminated, and the Eugenics Society made the definite claim that if all mental defectives were prevented from having children the number of defectives in the country would be halved in about three generations. But his impression, as the result of many years' experience, was that the number of mental defectives who were the offspring of defective parents was a very small proportion of the whole, probably not more than 5 per cent. That percentage represented the extent to which the number of defectives would have been lessened had all defectives been sterilized a generation ago. He protested against the way in which the public were being misled on this matter. There were certain definite difficulties and risks in sterilization which he did not think the community was justified in running, especially in view of the negligible benefit which would result. He indicated the difficulty which would arise in the selection of cases, and also the likelihood, if sterilization were practised, of increased promiscuous sexual intercourse. Further, he submitted that if the sterilization of defectives were legalized, there would be a real danger of delaying the true solution of the problem. The public would consider the matter disposed of, and be content to wait for results which would never come.

Dr. F. C. SHRUBSALL, after remarking on the difficulty of ascertaining any exact statistics, ventured the statement that in 75 per cent. of defectives of the lowest grade the condition might be said to be secondary amentia—that is to say, from causes arising from some accident since conception. In the slightly higher grade—the imbecile—about 45 per cent. were due to secondary amentia. With regard to the feeble-minded, no figure could be given on present records, but it could be stated with certainty that more than 10 per cent. of these were cases of secondary amentia. About 9 per cent. of defective individuals had defective brothers or sisters, and the majority of these cases were of simple primary amentia. If it were possible to acquire a knowledge of the full family history of a great number of cases, including the grandparents and the collateral branches, a great deal more would be learned about the methods of inheritance and distribution. It had to be remembered that there were many examples of feeble-minded persons from the educational standpoint who, from the biological standpoint, merely represented a lower grade of culture. The most dangerous type of case to deal with was the very high-grade defective, and the higher the grade the greater the prospects of parenthood. But, of course, the higher the grade of case the more difficult it would be to conduct an examination if an idea got abroad that, consequent on being deemed a defective, the person might be sterilized. The difficulties of the certifying officer

would be greatly increased by any precipitate action with regard to sterilization.

Dr. F. DOUGLAS TURNER said that one of the gaps in genetics was the absence of knowledge with regard to the causation of mental deficiency. It was impossible to think that the hotchpotch of diseases and conditions described as mental deficiency could be inherited along one single line or be due to any one cause. In Denmark, where some careful statistics had been worked out, it was stated that among the lower grades of mental defect 80 per cent. were due to secondary—that is, preventable—causes. Some years ago he went carefully through his own case papers and made inquiry into the families of those in his institution, and found that, going back in the direct line, only 2½ per cent. in each generation had had defective parents or grandparents. He also remarked on the very small proportion of such persons whom it was considered necessary to retain in an institution for fear that, if living in the community, they might have children; in some figures of his own, relating to 1,300 patients, this proportion was from 1 to 1½ per cent. of males and 1 per cent. of females.

Dr. H. B. BRACKENBURY thought that some suitable departmental commission or committee might well be appointed, though such a body was not a very appropriate instrument of research. He would not expect it to embark upon experimental research, but it could cover a very wide field of information and set it forth in an authoritative manner. The advance of knowledge on this subject had been considerable, and it was difficult for any individual to keep up with it. They were all in danger of remaining in a state which would have been an advanced state of knowledge eight or ten years ago. What were the sort of questions into which such a body might inquire? One question was as to the common level of general intelligence of the people of this country to-day. He thought they were all inclined to place it too high. On the answer to the question depended to a large extent the definition of mental deficiency. Further, how far was it true that feeble-minded parents tended to have families larger than the average size? It was a legend that they had such families, but there was little foundation for it after all. The latest results definitely indicated that the number of children who arrived at adolescence in a family the parents of which were themselves mentally deficient was scarcely higher than the average number in the general population. He also believed that the latest investigations of the results of placing these people in suitable environment outside institutions under proper supervision proved that, when in the community, they behaved themselves both socially and sexually in as decent a manner at least as the rest of the population. That was another point for inquiry. The speeches made that afternoon had caused him to recede somewhat from the position that there was room at the moment for a legislative measure allowing sterilization. He was not at all sure that it would be a wise thing even to take the preliminary step advocated by Dr. Langdon-Down. Dr. Langdon-Down had assumed that there would be such an amount of sterilization taking place in consequence of that measure as to allow important conclusions to be drawn therefrom. If it was to be as widespread as that, he was not sure that these tentative proposals ought to be supported.

One or two members of the general audience addressed the conference briefly, including one Catholic priest, who said that the Roman Catholic Church would resolutely oppose by every means in its power such a measure as had been suggested. The only method it could sanction was segregation.

Dr. BLACKER briefly replied; there was no resolution, and the CHAIRMAN, in closing the meeting, said that, diverse as were the opinions which had been expressed, everyone seemed to agree as to the need for an inquiry.

The Voluntary Worker.

Social services in connexion with mental hospitals were also the subject of debate at the conference. Mr. L. G. BROCK remarked that much of the success of the out-patient clinic would depend upon the choice of the right kind of social worker. An unpaid voluntary worker might be more acceptable to the patient than the highly trained expert. At the bottom of the British preference for the amateur as against the expert was a sound instinct, for in the end sympathy and other personal qualities might count for more than mere efficiency or right technique. Dr. THOMAS BEATON spoke to the same effect. His insistence that the ideal social worker should know nothing about psychology caused some surprise and amusement.

An interesting paper was read to the conference by Dr. E. O. LEWIS (Inspector, Board of Control) on the ascertainment and notification of mental defectives, especially retarded children, at present the most neglected group in the educational system. Several directors of education discussed the problem of school reorganization from this point of view.

On the first day of the conference the delegates were received by Sir LESLIE SCOTT at a luncheon at the Hotel Russell, when the guest of honour was Mr. L. G. Brock, chairman of the Board of Control, in place of Lord Riddell, who was unable to attend on account of illness. Mr. BROCK remarked that the service in which he and his colleagues were engaged was an unpopular health service, almost the only health service which was generally unpopular. But the Board of Control certainly derived great help and encouragement in facing public opinion from the support which they received from the Central Association for Mental Welfare and from the local voluntary associations. No central authority, whether the Board of Control or the Ministry of Health, could ever go far in advance of public opinion, and he confessed that there were times when he felt that the problem of dealing with mental deficiency would be insoluble were it not for the encouragement received and the lessons learned from the faith, devotion, and single-minded enthusiasm of many of those who worked in the voluntary associations up and down the country.

Nova et Vetera.

THE DOCTOR LOOKS AT REMBRANDT.

IF the series of "Great Painters and their Works, as Seen by a Doctor," keeps up to the standard of Dr. J. G. De Lint's *Rembrandt*[1] it should be a source of great interest and pleasure to many of our readers. The purpose of the series of monographs, Dr. De Lint tells us in his preface, is "to analyse the works of the Dutch painters of the seventeenth and eighteenth centuries and to notice what they contain of medical interest." Time only will show whether other painters can be made as medically interesting as Rembrandt, whose works present a surprising wealth of subjects connected with medicine and surgery, some represented by etchings and others by oil paintings, such as the celebrated "Lecture on Anatomy," now in the Mauritshuis at The Hague.

Public dissections seem to have been popular entertainments in the sixteenth and seventeenth centuries, and other artists besides Rembrandt took them for subjects of paintings and engravings and etchings. Some of these are reproduced by Dr. De Lint, but none of them can compete with the "Lecture on Anatomy" of Nicholas Tulp, painted in 1632, which, by the way, was evidently meant for a serious demonstration to professional men, whose portraits are included in the picture and whose names are on record. We even know the name of the corpse and the fact that he suffered death for "wantonness." The demonstrator, Nicholas Tulp, took his name and arms from a tulip carved in stone on the house in which he lived. He was a celebrated anatomist in his day, and a leading citizen who became Burgomaster of Amsterdam. His son-in-law, Arnoult Tholinx, was also an anatomist, and had his portrait engraved by Rembrandt. In no other European country was science held in such esteem or its teachers so honoured as in Holland in the sixteenth and seventeenth centuries. In the latter period Boerhaave was the most

[1] *Rembrandt.* By Dr. J. G. De Lint. Great Painters and their Works as Seen by a Doctor, i. The Hague: J. P. Kruseman. 1930. (8½ x 5½, pp. 113; 64 figures. 10s.)

celebrated and honoured man in the Low Countries, and there was nothing exceptional in an anatomist becoming a burgomaster in those less engrossing days. Excellently as Sir Arthur Keith would fill the office of Lord Mayor of London, or Professor Elliot Smith that of chairman of the London County Council, neither of them could nowadays be spared from their important archaeological and anthropological researches.

It is rather surprising to learn that in the matter of human anatomy Holland was chronologically behind Scotland. As mentioned in a Nova et Vetera article in these pages,[1] the town council of Edinburgh ordered the body of "ane condampnit man" to be handed over to the Company of Surgeons for dissection as early as 1505, thirty-eight years before the publication of the great work of Vesalius. The earliest recorded public dissection in Holland, according to Dr. De Lint, took place in Amsterdam in 1550, and in 1555 Philip King of Spain and Count of Holland gave a privilege to the Corporation of Surgeons of that city to have the corpse of a criminal once a year for their instruction. Rembrandt's picture is justly the most celebrated, but it is by no means the earliest, representation of a dissection in Holland. Petrus Paauw or Pavius founded an anatomical theatre in 1592 at Leyden, and dissected sixty bodies in twenty-three years. The public regarded the dissections as a kind of show, and were admitted to the third row of the amphitheatre on payment. W. P. Buytenwech made a sepia drawing of Paauw's lecture before 1627, and Andreas Stockius engraved it from an opposite point of view. Dr. De Lint says that the portraits of several well-known people of the time can be recognized among the many visitors. Michael and Peter van Mierevelt's "Lecture on Anatomy," containing the portrait of Dr. van der Meer and seventeen visitors, was painted in 1617. Dr. De Lint does not tell us, however, where this picture now is. Rembrandt painted another lecture on anatomy by Dr. J. Deymann, but it was nearly destroyed by fire in 1723, and only a sketch in the Six Collection remains to show its composition. Besides the dead body and the lecturer, it contained the portraits of eight physicians. In paintings and etchings Rembrandt has left us various portraits of physicians, such as Ephraim Bonus, Jan Antonides van den Linden, and Arnoult Tholinx, which are reproduced in this book.

The Parable of the Good Samaritan was a subject which evidently interested Rembrandt. He represented various scenes from it in his etchings and pen-and-ink drawings, of which no fewer than six are reproduced in this book, as also the Circumcision of Christ, which was treated by the artist in numerous works, one of which, an etching, is reproduced by Dr. De Lint. The story of Tobit's blindness, due to sparrows' dung, and its cure by the application of the gall of a particular fish by his son Tobias, is a curious piece of folklore; and, mixed up as it is with another typical story of the virgin whose embrace was fatal to seven men in succession, as told in the Apocrypha, it furnished matter for a number of works by Rembrandt. As Dr. De Lint notes, it is curious that in many of the representations of persons wearing glasses these seem to have no side-pieces, as do regular spectacles, but apparently are eye-glasses, and worn low down on the nose. In the portrait of Arnoult Tholinx such glasses are clearly shown, held between finger and thumb. This is one of Rembrandt's rarest etchings.

Other more or less medical subjects illustrated by the master were internal medicine, miraculous healings, surgery, and the lying-in room and care of infants. It would be impossible in a notice such as this to do justice to them as treated by Dr. De Lint. Readers who wish to see these excellent reproductions of sixty-four pictures are recommended to get the volume, which is decidedly cheap at ten shillings. We presume that the author has put his work into English himself. If so, it shows a very good knowledge of the language. Only one amendment occurs to us—namely, that *dissect* and *dissection* should be substituted for *prepare* and *preparation*, which words are not used in the same sense in England as on the Continent.

E. M. L.

[1] The Supply of Anatomical Subjects, *British Medical Journal*, 1929, i, p. 966.

France.

[FROM OUR OWN CORRESPONDENT.]

Congresses in Paris.

AUTUMN brings back to Paris both physicians and patients, so we are told. The Faculty of Medicine opens first for the benefit of that special type of student—the senior practitioners. They meet in various congresses. The Thirty-ninth Congress of Surgery was opened by the celebrated novel-writer Paul Bourget, who is well known for the interest he has always taken in medicine. The president, Dr. Auvray, insisted on the need for training anaesthetists up to a high standard of specialization, following the example set by Great Britain and America. By the way, it seems rather extraordinary that such a move should still have to be considered. Drs. Lambret and Sauvé discussed pre-operative treatment and the necessity for methodical study of functional tone. Professor Archibald Young of Glasgow laid stress on acidosis, renal elimination, and the psychological factors in anaesthesia. The second question debated was that of traumatic spondylitis. Next year the congress will discuss the three following questions: post-operative peptic ulcers, immediate surgical treatment of compound fractures of the leg, and pneumococcal pneumonias. Among other congresses that met in Paris last month may be mentioned the First Congress of Aesthetic Surgery. I have already alluded to the difficulty this specialty has had to deal with in the law courts. It seems to have been considered by the judge as a *de luxe* surgery, not worth while the dangers that must be involved necessarily in every surgical operation. But the social importance of the question has been emphasized. If it is true, as Pascal puts it, that the whole face of the world would have been different if Queen Cleopatra had been endowed with a turned-up nose, it is just as true to say that many have seen their career ruined nowadays because their profile is very far from the Cleopatra standard. Such a handicap may be and should be corrected. The First International Congress of Orthopaedics was held under the chairmanship of Sir Robert Jones of Liverpool, who delivered the opening address, entitled, "The surgery of motion." Two questions were discussed—namely, the treatment of congenital dislocation of the hip after the fifteenth year, and the treatment of traumatism of the wrist. The Thirtieth Congress of the French Urological Association discussed kidney contusions, and the prize of the association was awarded to Dr. Chabannier, well known for his pioneer work in the field of urology. At the Pasteur Institute was held the Seventeenth Congress of Hygiene and Public Health. Infant mortality was discussed in connexion with B.C.G. vaccination. The method is extensively employed in France, with gratifying results.

Efficacy of Antidiphtherial Serum.

The Académie de Médecine has been asked by the Secretary of the Ministry of Public Health to investigate the efficacy of antidiphtherial serum as it is now handed to the practitioner. Some have contended that they had to use larger doses than formerly in order to produce similar effects. A queer explanation was suggested for such a fact. The bacilli had spontaneously increased their virulence in order to overcome the protective action of the serum! It is true that since 1925 the serum has been prepared by injecting the horse with anatoxin, and no more with the toxin. This increases the strength of the serum to 325 antitoxic units per cubic centimetre, as compared with the 250 which were obtained formerly. Professor Renault, who reported to the Académie, lays special stress on what used to be called "Le Génie Epidémique." Mortality seems to have varied during successive epidemics from 13 to 85 per cent. During the last nineteen years his statistics show that mortality in serum-treated cases reaches 50 per cent. between the ages of 7 and 12 months, 40 per cent. between 1 and 2 years of age, 17 per cent. from 2 to 3, 13 per cent. from 4 to 5, 8 per cent. from 5 to 10. After the age of 10 the death rate is almost *nil*. As regards the value of the serum as it is now delivered his conclusions are optimistic.

Death of Dr. Auclair.

Dr. Auclair died a few weeks ago. For twenty years he had been carrying out, in Paris hospitals, original research on vaccination for tuberculosis. He reported his results at the Académie de Médecine on February 1st, 1930, and in a book just issued. Studying the infection in animals, he came to the conclusion that it was more a question of soil than a question of germ. Why, he asked, are birds immune against the human bacillus? Dr. Auclair proved experimentally in hens that it was due to some pancreatic secretion. Taking a mixture of pancreatic extract with Koch's bacilli, he injected this into rabbits and guinea-pigs, and successfully immunized them against human tuberculosis. The immunizing substance which existed in the pancreas of the hen had been activated in the extracts. It became fixed when in contact with the bacilli, and the combination acted as a vaccine. Such a vaccine stimulated the pancreas of the rabbit; a new secretion started, which was able to check and to destroy the bacillus. Dr. Auclair died before he could complete a demonstration which the world was waiting for; but his investigations on human beings led him to think that his vaccine had both a preventive and a curative effect. The experimental stage of his work has been carried very far indeed. Let us hope the question of dosage and of repeated injections will now be studied.

G. MONOD.

Ireland.

Diphtheria in Dublin.

AT a meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland, held on November 28th, with Dr. J. Lait in the chair, Dr. R. A. Q. O'Meara read a communication entitled "The prevalence of diphtheria carriers among Dublin school children." In all he had examined 1,000 school children between the ages of 3 and 13, and had taken nose and throat swabs from each. Morphological diphtheria bacilli were present in swabs from fifty of the children. From 82 per cent. of the carriers the organisms were isolated and subjected to fermentation and virulence tests. The results showed that 5 per cent. of the children were carriers of virulent and non-virulent, while 2.3 per cent. were carriers of virulent, diphtheria bacilli. He estimated that there were some 3,000 carriers of diphtheria bacilli in the Dublin schools, of whom 1,400 were carriers of virulent organisms. The carrier rate was higher for girls than for boys. The virulent bacillus carrier rates for the north side of the city, the south side of the city, and for the whole city were the same—namely, 2.3 per cent. The importance of nasal swabs in searching for carriers was emphasized by the fact that 25 per cent. of the positives were nasal carriers only, 18 per cent. were throat carriers only, while 7 per cent. were carriers in both nose and throat. The organisms were virulent in 44 per cent. of the nasal carriers, in 43 per cent. of the throat carriers, and in 68 per cent. of the nose and throat carriers. Dr. W. R. O'Farrell said that he had done some work on similar lines to that described, and referred to the importance of the intermittency of the carrier state and its bearing on the results obtained in any locality. Dr. M. J. Russell, medical officer of health, said that the schools of the city were overcrowded, and, enhancing as they did the opportunities of spreading infection, the carriers were a grave menace. The public health authorities, to overcome this menace, and to prevent the disease as far as possible, had adopted prophylactic inoculation of children before school age. A clinic had been established for that purpose, and was actively engaged in the administration of toxoid-antitoxin mixture. In this way it was hoped that the incidence and mortality of the disease, which had shown a distinct upward tendency in recent years, would be lessened. He appealed to doctors to isolate promptly all cases and to delay discharging convalescents until they no longer harboured the diphtheria bacillus. No doubt overcrowding, lack of light and air, and defective food assisted in causing the disease. Dr. W. F. Cooper suggested that the inculcation of cleanly habits into the poorer children in Dublin schools would help in reducing the number of carriers. Dr. O'Meara, in reply, said that he did not recommend the Schick test as a method of distinguishing the carrier from the early case. The distinction could best be made on clinical grounds, and in cases of doubt serum should be given. The intermittency of carriers was well recognized, and in addition the number found in an investigation depended upon the technique adopted in searching for them. If the technique were standardized, and a large enough number of children were examined, he believed that a significant average for comparative purposes could be obtained. The difference between virulent and non-virulent diphtheria bacilli was that the former were toxin-producing, whereas the latter were not. The non-virulent type was harmless and did not give rise to the virulent type. There was no necessity for antitoxin when only non-virulent organisms were present.

Dissolution of the County Galway Board of Health.

Owing to the repeated refusal of the Galway Board of Health to appoint an assistant medical officer of health as requested by the Department of Local Government and Public Health, the Minister has caused a letter to be addressed to the board, in which he refers to his obligations under Section 72 of the Local Government Act, 1925. For some considerable period, he states, he has had grave doubts of the capacity and efficiency of the Galway Board of Health. He draws attention to its protracted delay in providing suitable hospital facilities at Clifden and Ballinasloe, although many representations were addressed to it on the subject. He notes that on March 26th it committed itself to a policy of abrogating its authority as regards disciplinary questions affecting dispensary medical officers. The Minister considers that the conduct of the board in these instances is bound to react unfavourably on the interests of the sick poor throughout the county, and seriously affect the efficient administration of the Poor Relief and Medical Charities Acts by undermining disciplinary authority. Commenting on the apparent opposition of the board to the reorganization of public health services, the Minister refers to the recent inquiry—described in the *Journal* of December 6th (p. 976)—which indicated that the board, in spite of repeated warnings by the department, had obstructed the carrying out of the duties of the county medical officer of health by declining to appoint an assistant officer to act as tuberculosis officer and school medical officer. In consequence, the county tuberculosis scheme had partially fallen into abeyance since September 30th, with unfavourable results to patients who had been under treatment. Moreover, after consenting to appoint two public health nurses, and when the procedure for their selection was already well advanced, the board had rescinded its decision and refused to proceed further with the matter. In these circumstances, the letter concludes, the Minister sees no other course in the public interest but to exercise his authority under the section of the Act referred to, and has accordingly issued an Order under Seal, dissolving the Galway Board of Health and Public Assistance, and transferring its powers and duties to Mr. E. S. MacGuaigan of Belmont Villa, Cavan.

Damages Against Medical Officer of Health.

Damages were claimed at Roscommon by Michael Campbell and Mrs. Brennan, Four-Mile-House, against the County Roscommon Board of Health and Dr. Maguire, county medical officer of health, for clothes and other articles burned in a case of infectious fever. It was stated that following the death of one occupant of the house, and the removal of another to hospital suffering from typhus, Dr. Maguire, who had been called in, decided that the inmates and contents of the house should be disinfected, and arrangements were made at the County Home to have this done. Patrick Campbell appealed to Dr. Maguire not to have the clothes and bedding taken to be disinfected, on the ground that the publication of the fact that there was fever in the family would be injurious to their business. He subsequently signed a document

indemnifying Dr. Maguire against any action or claim if he should decide to have the articles burned. After considerable pressure Dr. Maguire agreed, and the clothing and bedding were burned. Following a refusal by the Board of Health to compensate the plaintiffs, they issued civil bills against the board and Dr. Maguire, claiming over £200 damages. They denied that Patrick Campbell had any authority from them to have their property destroyed. For the defence it was urged that Dr. Maguire was merely carrying out his duty under the Act, and that he believed that Patrick Campbell had full authority to act for the family. Judge Moonan dismissed the case against the board, and gave decrees against Dr. Maguire for £90 and £75 respectively. He expressed the hope that the board would not allow Dr. Maguire to suffer any loss in the matter.

England and Wales.

King Edward's Hospital Fund for London.

THE annual distribution meeting of King Edward's Hospital Fund for London was held on December 12th, with the Prince of Wales in the chair. A letter was read from the King expressing his satisfaction that the distribution to the various hospitals had increased from £250,000 to £266,000, and that £16,000 had also been received on capital account. The Prince of Wales, in his speech, explained that the increased distribution had been rendered possible by a donation of £10,000 from an anonymous friend, who had now contributed during the past few years a total of £54,000. Moreover, there had been considerable additions to the capital fund, the income from which was the solid foundation for these annual distributions. In addition to the £266,000 distributed, pension grants of £16,468 had been made. A further 6 grams of radium had been purchased, a deficit of £8,000 having been met in advance by the late Sir Otto Beit just before his death. The annual grant to convalescent homes had been increased from £2,000 to £3,000. Lord Marshall reported that the League of Mercy had been able to allocate from the King's Fund a sum of £17,000 from its collection. The number of hospitals receiving grants this year was 141, as compared with 143 last year. No reduction had been necessary in the general scale previously adopted, and the additional money obtained has enabled certain hospitals which were in exceptional difficulties to receive special assistance. The total of the present distribution, taking into account grants for ordinary maintenance, for capital expenditure, and for special pensions, was £279,468.

Old Epsomian Dinner.

"Floreat, Epsomia, Floreat, florebit," says the chorus of the *Canticum Epsomiense*. The enthusiasm of the company of 150 old boys and guests, and the speeches of the president and the head master, at the fifty-third annual meeting and dinner of the Old Epsomian Club, held on December 11th at the Wharncliffe Rooms, proved abundantly that the College is flourishing and will continue to flourish. Mr. A. C. C. Parkinson, in characteristic fashion, proposed the toast of the president, Dr. L. L. C. Reynolds. He said it was typical of Dr. Reynolds throughout his life that he never let himself or his men down. He had been soldier and doctor, and he had covered himself with the glory of both professions. Replying to the toast, Dr. Reynolds spoke reminiscently, and dwelt on the example of his old teachers and friends at Epsom College; their encouragement and stimulation had been an influence to him all his life. Going on to propose the toast "Floreat Epsomia," he said that, since its foundation in 1850, the school had had a proud record; during the great war 145 had laid down their lives, and, as years went on, the loss of old and beloved masters created blanks which could never be filled. For the present the school was steadily prospering, and in the future he was certain that it would go from strength to strength. In reply, Mr. A. C. Powell, the head master, reviewed the work of the year, and spoke of both academic and athletic distinctions. The Old Boys' Club now numbered almost a thousand members, and was still growing. The financial position of the school was sound. They had had a very successful year, and he hoped that before long they would be able to accommodate 450 boys in the various houses. Mr. G. E. Neligan proposed the health of the guests, to which Lord Burnham and Lord Dawson of Penn replied. In commenting on the position of medicine to-day, Lord Dawson said that tradition must be maintained, but all must be prepared to dispense with the things that did not matter. The doctors of the future would probably have to concentrate on prevention rather than on the treatment of disease. Recent legislation had resulted in the provision of many new hospitals, and the question of staffing these was one in which the guidance of the medical profession must be sought. It was the duty of the profession to have a satisfactory and efficient medical policy. He had profound faith in its future.

Clinical Laboratories in Hospitals.

At a meeting of the Liverpool Medical Institution, held on December 4th, Dr. E. Cronin Lowe read a paper entitled "The relation of the clinical laboratory to the general hospital." This relationship, he said, had greatly developed on account of the many modern advances in the investigation of clinical problems from both the bacteriological and pathological aspects. After outlining the many activities which present-day requirements in clinical research demanded, he remarked upon his personal experiences in the activities of the clinical laboratories in the Liverpool and Southport districts. Apart from the investigation of in-patients, the clinical laboratory dealt with the out-patient class of case, undertaking tests of gastric, hepatic, pancreatic, or renal function, and also bacteriological investigation of cases suspected to be suffering from some form of focal infection. Dr. Lowe described a scheme of clinical and pathological overhaul, and emphasized the importance of cytological and biochemical examination of the blood condition of such patients, thereby obtaining the opportunity of detecting associated derangements which frequently indicated helpful lines of collateral treatment. In emphasizing the importance of examinations for evidence of focal infection he described the practical utility of the pathogen-selective method in bacterial investigations, and, further, the value which the method provided, on later repetition, of obtaining evidence of improved immunity, or otherwise, in the cases concerned. He also said that the modern clinical laboratory attached to the general hospital should become a treatment centre for such cases as were detailed to it, and his experience was that valuable results were only thus obtained, as the patients were under the observation of both clinical pathologist and clinician. The establishment of such departments necessitated an equipment and staff capable of undertaking full bacteriological and pathological investigations upon the ordinary type of clinical specimens. There should also be examination and treatment rooms. The steady increase of activities in the centres developed during the past ten years was definite evidence, not only of the practicability of such a scheme, but of its utility to the clinical departments of the general hospitals with which they were associated.

Medico-Legal Society: Annual Dinner.

The annual dinner of the Medico-Legal Society took place at the Holborn Restaurant on December 12th, with the Right Hon. Earl Russell presiding. Sir William Willcox voiced the general regret at the absence through illness of Lord Riddell, the society's president. He went on to propose the usual toast of "Medicine and Law," comparing and contrasting the two professions. Both of them, he said, were jealous mistresses, neither of them to be taken up without a definite "call," but they were different in the respect that medicine was ever changing to keep pace with science, while law moved only slowly from precedent to precedent. Dr. R. A. Young, President of the Medical Society of London, whose name was associated with the toast, also said that the two professions had many things in common. He noticed that only the other day the head master of Harrow, Dr. Norwood, had said that both medicine and law, like mathematics, were accurate

professions. Dr. Young did not know about law, but he was sure that was a mistaken view of the profession of medicine. It was not an accurate profession, and the sciences on which it was founded were constantly in a state of variation. On three subjects he thought the members of the two professions would never agree—namely, as to the signs of intoxication, as to the criteria of insanity, and as to the right of the medical profession to claim the privilege of professional secrecy. Sir Thomas Hughes, Chairman of the General Council of the Bar, who also responded to the toast, took occasion to remark on Mr. Justice McCardie's recent pronouncement, in his Maudsley Lecture, on the widespread extent of perjury. There was some substratum of truth in Mr. Justice McCardie's complaint, but he thought it rather exaggerated. It had to be remembered that of recent years an accused person was allowed to give evidence on his own behalf, and the same standard of truth could not be expected from a person in that position as from the ordinary witness; but, save in that respect, he doubted whether perjury existed to the extent which the learned judge had supposed. Mr. E. H. Tindal Atkinson, Director of Public Prosecutions, in proposing the health of the society, referred to his earlier experience as a referee under the National Health Insurance Act. This had introduced him to some curious byways of general practice, but it had inspired him with great respect for the very able doctors whom the Ministry of Health had appointed to sit with him as assessors. In some amusing references to medical terminology, Mr. Tindal Atkinson said that in the reign of Elizabeth, if a coach had run over someone, the local leech would have reported to the coroner, had there been one, that the deceased "was considerably injured in his liver and lights." Nowadays, when he received a report on a motor manslaughter case, the reference to the liver might still remain, but the reference to the "lights" had given way to other anatomical descriptions, not so illuminating, which made him search his memory for forgotten Latin and Greek. He added that when he read the reports on manslaughter cases (including long statements of witnesses who were always prepared to give him a theory as to the blame for the accident (forgetting that that was the duty of the jury), he turned with relief to the medical reports, where certainly he got medical theory, but also, what he most valued, absolute impartiality. The doctors in this country being what they were, there was little danger of such a verdict being returned as was once returned at an inquest in Ireland: "The deceased undoubtedly committed suicide, but his end was hastened by the post-mortem examination." Earl Russell, in responding for the society, mentioned that twenty-three new members had been admitted during the year, bringing the membership up to over 400. He exhibited the president's new badge, a very beautiful piece of workmanship. The health of the guests was proposed by Sir Albion Richardson, and Sir Alfred Tobin, Treasurer of the Middle Temple, and Lieut.-Colonel C. T. Samman, Master of the Society of Apothecaries, made brief replies.

Correspondence.

THE STETHOSCOPE AS AN AID TO PERCUSSION.

SIR,—It is perhaps a bold thing to suggest any new method in the practice of percussion. At various times attempts to promote skill in the art, and the attainment of confident results, have taken the form of specialized plexors and pleximeters, and auscultatory percussion and the combination of the stethoscope and the tuning-fork are further modifications which claim value in these respects. Yet for the most part the simple original procedure holds the field. In actual practice there is probably in every performer a gradual and perhaps unconscious development of some individuality of method and of judgement, so that for him his personal procedure yields fairly satisfactory results. None the less it remains true that in no fashion of physical examination is a high level of efficiency so difficult to attain, and in no method is the performer more likely to fall into some degree of self-deception. I have this latter consideration well in mind when I draw attention to a simple development in which I have convinced myself there is decided helpfulness. This is to wear the binaural stethoscope when practising percussion. The bell of the stethoscope is not placed on the patient's body, but is allowed to dangle, as one may say, in the air, while the earpieces are worn in the usual fashion; a considerable shortening of the india-rubber tube makes for convenience, but is by no means essential. Under these conditions the quality of the response to the percussion stroke appears to me to gain in distinctness, and there is increased sharpness in defining areas of dullness and in recognizing contrasts between the percussion qualities of neighbouring organs. Whether these results are due to the exclusion of other noises by the earpieces or whether the bell of the stethoscope has some resonating virtue I cannot say, but as an aid to confident percussion this simple device is well worth cultivation. I have tried bells of various sizes and shapes, and also a support to keep the bell immediately over the part of the body under examination, but in the end the simple binaural stethoscope used as above described proves quite satisfactory, and I venture to commend the method as suitable for experiment. Naturally a little patience and attention are needed at the outset, but, given these qualities, I think that what is here described will be found a decided help to a confident percussion judgement. As the publication of Dr. R. A. Young's extremely interesting presidential address on "The Stethoscope"[1] is just now engaging attention, the occasion tempts me to put into print a suggestion to which in less formal fashion I have sometimes invited the attention of my colleagues.

I venture another allusion. Dr. Young describes various complicated forms of stethoscope, and also mentions resort in an emergency to such handy tools as a wine glass or a thermos flask. Some years ago, in the *British Medical Journal* of March 4th, 1916, I drew attention to the real service which a cylindrical urine test glass can render in this direction; and I add some others. Thus, by grasping the cylinder and using the edge of the rounded bottom as a hammerhead a plexor for heavy percussion is provided. Employed, too, in this way the glass is exactly the apparatus required to provoke the knee-jerks and bicep jerks, as well as the tendon-jerks of the upper limbs, while the "spout" offers itself invitingly when the enterprising of the plantar reflex has to be undertaken. Again, rolled over the surface of the skin, the cylinder differentiates haemorrhagic and pigment spots from spots due to congestion and inflammation; and; once more, the glass is a convenient object for the patient's grasp when intravenous medication or venesection has to be undertaken. There remain the specific purpose for which the glass was called into being, its modest price, its cleanly quality, its readiness for service. It is a modest form of apparatus, but its clinical values are both numerous and varied.—I am, etc.,

London, W.1, Dec. 9th. C. O. HAWTHORNE.

RESULTS OF TREATMENT OF CANCER.

SIR,—Dr. Russell Green in his letter in the *British Medical Journal* of November 29th (p. 932) says: "It is important that the advance of radiology should not be held up by a barrage of fallacy," in which everyone will agree; but he then goes on to depreciate the results attained by operation for cancer of the breast, as shown by the Birmingham Branch of the British Empire Cancer Campaign (Report 1927, p. 59). May I explain that a special officer, Dr. Lunn, was appointed to collate all cases of cancer of the breast operated on between the years 1910 and 1920 at the General, the Queen's, and the Women's Hospitals. The total number of cases was 7[illegible]. In 258 of these cases no microscopic report was obtained, and to ensure as complete accuracy as possible these cases

[1] *British Medical Journal*, October 18th, 1930.

were not pursued, the scope of the inquiry being limited to 541 cases in which microscopic reports were available. Of these, 34 could not be traced by Dr. Lunn, by the medical officer of health, or by the Registrar-General. The report therefore dealt with 507 cases, and it was shown that at the end of three years 54 per cent., at the end of five years 40 per cent., and at the end of ten years 30 per cent., were alive and well. These results are fully supported in the Ministry of Health Report, No. 51 (p. 93), by Dr. Janet Lane-Claypon. The statement by Dr. Green that "the total number of cases operated on was ignored" is not true, as the report shows, and it is strange that Dr. Green, who is a member of the local committee, should now for the first time challenge the report, and did not comment on the figures at the meetings.

Dr. Green quotes figures from Swedish sources, showing results at a five-year period after operation, the freedom from recurrence varying from 15 to 20 per cent., and then builds up statistics which are based upon figures, some imaginary and others that cannot be tested, his object being to depreciate the value of the results obtained by Birmingham surgeons. Confirmation of the 1927 report is fortunately provided by an inquiry undertaken by Mr. Percival Mills in 1921, published, I believe, in the *British Journal of Surgery*. Mr. Mills investigated the cases of cancer of the breast operated on at the General Hospital. He adopted a six-year period, and found that 38 per cent. remained well after that lapse of time. At the same time he inquired into the results obtained from my private cases, every one of which was investigated microscopically; of these 48 per cent. remained well at the end of six years.

As a further confirmation, the history of a group of 5 of my patients, all doctors' wives, may be quoted: in 1923, 3 were alive and well twenty-three, twenty, and fourteen years respectively after operation, although two had infected axillary glands. The other 2 developed metastases and died one year and three years respectively after operation.—I am, etc.,

GILBERT BARLING,
Chairman, Birmingham Branch, British Empire Cancer Campaign.

Edgbaston, Dec. 9th.

SURGICAL TREATMENT OF CHRONIC DUODENAL ULCER.

SIR,—In the matter of treatment of chronic duodenal ulcer to-day, almost all the leaders in the field of gastro-duodenal surgery advocate a short-circuiting operation, with or without some form of direct attack upon the ulcer itself, such as infolding or invagination, cauterization, or local excision. Partial duodenectomy has been introduced during the last few years. In dealing with a perforated duodenal ulcer one of the simple methods of closure of the opening will not only bring about a cure of the symptoms, but also the disappearance of the actual ulcer mass; this is of course an accepted and proved fact about which there can be no dispute. The way in which this occurs is a matter for speculation, but it may be that a new and vigorous peritoneal base is created, which, with the well-known phagocytic action of that tissue, results eventually in the demolition and absorption of the mass.

The question arises, What is the difference in structure between the non-perforated and the perforated ulcer? The answer is, that, except for the opening in the peritoneum, there is no difference; it is purely a matter of the depth of penetration of the ulcer into the layers of the gut. It is said that in the latter type there is an absence of granulation tissue, the effect of which, however, can in no way alter the ultimate disappearance of the ulcerous tissue which follows simple infolding. This being so, why is it that so serious an operation as one of those mentioned in the first paragraph is recommended to us as being the only treatment for every case of non-perforated ulcer, when quite a large number lend themselves to safe, easy, and deliberate perforation with the cautery, thus bringing them within that category which can be dealt with by simple suture? If this treatment does all that is necessary in the perforated type, then it is safe to assume that this same treatment, applied, after due attention to any possible sites of infection elsewhere to the non-perforated ulcer, will give the desired result. This, indeed, is what I have found in my own cases, which are, however, not numerous. But is one to wait until a series of a hundred cases has been completed, and ten years have elapsed after the last one, before making known the results?

In view of this, I would go so far as to state that the wholesale use of the more severe and serious operation is not justified, and that it should not be used for those ulcers situated on the anterior wall which are easily accessible, single, and more than half an inch from the pyloric ring. The opportunities for applying the minor method will be found to be numerous. The variety of operative procedures propounded by our leaders—and vigorously taught by their disciples—is in itself proof of the prevailing uncertainty as to the treatment of duodenal ulcer, the pathology of which is obscure and the cause unknown. Even the manner in which a gastro-enterostomy acts in its curative effect is, after many years, still in dispute among those who so ardently advocate its use.

Although it has been said that abdominal surgery has reached a point of advance beyond which we cannot hope to go—and we accept this—any improvements which are likely to be evolved on the basis of our present knowledge can only be anticipated by minutely traversing the old paths which have led to that very end. It seems that in the suggestion which I submit, implying as it does safety, simplicity, and effectiveness, there are at least possibilities.—I am, etc.,

DONALD MACLEOD, F.R.C.S.

Leigh, Lancs, Dec. 4th.

NON-SPECIFIC PROTEIN THERAPY IN ELEPHANTIASIS.

SIR,—In the *Lancet* (January 11th, 1930, p. 72), together with Dr. Strangways Dixon, I reported a series of cases of elephantiasis treated by protein shock. In some of these no beneficial results were obtained, but I have gone on with a similar treatment in other cases in order to get larger figures to work upon for reliable statistics. I expressed the wish that other workers would also try the method in the hope of obtaining some definite proof. I am therefore interested in Dr. McGolrick's case from Weihaiwei, reported in the *British Medical Journal* for December 6th (p. 957). Here larger doses of the vaccine were given than usual (maximum 800 million), and also at more frequent intervals. The results seemed to be good, a steady diminution in the size and a marked change in the consistency of the leg taking place. Due prominence is given to the part that the elastic pressure played in the result, but Dr. McGolrick is convinced that this alone could not have produced such a favourable effect in so short a time. He stresses the larger doses of the vaccine and the shorter intervals.

The case, as I have said, is of interest, and compares favourably with some of those in my series; but here, as in most of my cases, the end-results have not yet been followed up, and until they are one cannot definitely decide as to the efficacy or otherwise of this new form of treatment for elephantiasis. Again one hopes that observers will try the method and report their results.—I am, etc.,

G. CARMICHAEL LOW.

London, W., Dec. 8th.

TEMPORARY TREATMENT WITHOUT CERTIFICATION.

SIR,—A correspondent in your issue of December 6th wishes for the official interpretation of the Board of Control of the term "incapable of expressing himself as willing or unwilling to receive treatment." This can be found in the report of the proceedings of the conference on mental treatment, published by H.M. Stationery Office, on page 64 of which Sir Hubert Bond, a distinguished member of the Board, says of "the incapacity to express willingness or unwillingness to receive treatment," that "to attempt to strain these words, and to bring within the section cases that in fact are unwilling to receive treatment in the place selected, and that ought to be certified, will be both improper and most unwise: this is a lesson which

I am sure we should all take to heart; it is one wherein, as to the decision to be taken before reception, the fact that one of the recommending physicians must (Subsection 3) be a practitioner approved for this duty should prove of signal value." On page 66 he says, "mental conditions, which may render the patient incapable of expressing himself as willing or unwilling to receive treatment, may be sudden in onset and may be the first indication of mental illness: as, for example, during the puerperium, or in the course of severe toxaemia, or occasionally following upon a severe mental shock. In all such cases, where removal from home is necessary, resort to the procedure for 'temporary treatment without certification' seems indicated." I take it that these statements of Sir Hubert Bond express the views of the Board of Control or are an "official interpretation."—I am, etc.,

Cheadle Royal, Dec. 9th. L. HARRIS-LISTON.

FLAVINE AND GLYCERIN IN MIDWIFERY.

SIR,—I was much interested to see in the *British Medical Journal* of December 6th (p. 980) a letter by Dr. Mackinnon of Oldham advocating the use of glycerin in labour. For nearly two years I have been working and trying to find a suitable antiseptic to use with glycerin for vaginal injection in cases of labour, for I was of opinion that if one could keep a viscous hygroscopic fluid like glycerin impregnated with a potent antiseptic in close contact with the parturient passage during labour, it would diminish the chance of infection from without, and also from the vagina. Early in 1929 I was in correspondence with Mr. W. H. Martindale, F.I.C., F.C.S., on this subject, and I suggested using phenol and glycerin. Mr. Martindale very kindly gave me his valuable advice, and tested the bactericidal power of phenol in water and glycerin. His experiments proved that phenol in glycerin is two and a half to three times less potent as an antiseptic than in aqueous solution. We therefore came to the conclusion that the strength of phenol to be potent as an antiseptic would be too irritating for the delicate tissues of the vagina.

Professor C. Oldfield of Leeds, to whom I was kindly referred by Lord Moynihan, quite approved of the idea, but suggested the use of acriflavine, as being less irritating to the tissues and equally effective as an antiseptic. I am grateful to him for his advice, of which I have gladly availed myself.

The suggestion was that prior to any vaginal examination a *vaginal injection of flavine and glycerin* should be given, this injection to be repeated prior to any manipulative or operative intervention, and to be repeated at the end of the labour, the injection to be given under the strictest antiseptic precautions, and, as Professor Oldfield suggested, by the person who is to make the examination or perform the operation.

I wrote a short paper last year embodying this suggestion, and also a few others, the principal other one being the *continuous administration of calcium salts from the commencement of the pregnancy to the end of the puerperium*, with the object of abolishing the calcium deficiency and building up the resisting power of the individual. This paper has not so far been published. In the meantime I hope that the suggested treatment—continuous administration of calcium salts, and the use of vaginal injections of flavine and glycerin in labour—may be given a trial. Surely in the fight to reduce maternal mortality any reasonable logical method is worthy of a fair trial. It is with this object, and because the Maternal Mortality Committee (to whom the paper had been sent) advised me to publish it in the medical journals, that I write this letter.—I am, etc.,

Congleton, Dec. 8th. J. L. MOIR, M.B., Ch.B.

SIR,—The use of glycerin as a routine dressing for perineal wounds in midwifery, as described by Dr. Mackinnon in your issue of December 6th, is interesting, and would appear to be as efficacious as a rather more elaborate preparation which I have been in the habit of employing. This preparation is as follows: acriflavine 1½ grams, paraff. liq. 2½ ounces, cera alba 40 grains, aq. dest. 5 drachms. It is applied on gauze strips.

Flavine (or acriflavine, diamino-methyl-acridin… chloride) acts as a bactericide in a concentration 400 ti… lower than that required to interfere seriously with ph… cytosis. The dressing is also largely waterproof, and th… protects the devitalized perineal tissues from the soften… and infective action of the secretions found in this reg… It further counteracts the irritation commonly experien… from the sutures themselves. Cases treated with th… method, like that of Dr. Mackinnon, show no signs … sepsis.—I am, etc.,

Newhall, Dec. 6th. E. M. R. FRAZER.

NOCTURNAL INCONTINENCE IN CHILDREN.

SIR,—I thoroughly agree with the communication … Dr. J. Pereira Gray in the *Journal* of November 29th … the subject of nocturnal incontinence in children. It … a treatment I have adopted for over a year. The ca… of this condition is not thoroughly understood, hence th… many failures of treatment. In all my cases for the la… ten years I have had the eyes examined for errors … refraction, and, if required, this has been remedied b… suitable glasses. The tonsils and adenoids have been … removed and circumcision in boys has always been per… formed. In none, however, did a cure result. I met … Colonel McCarrison ten years ago, and he suggested th… the condition might be due to small vesical ulcers … vitamin-deficiency origin, for he had several times in h… experiments on animals found vesical ulcers to be ass… ciated with vitamin deficiency. Since then I have alway… cystoscoped my patients, but in every case have seen … perfectly healthy bladder, completely devoid of ulceration.

About six years ago a neurologist, with whom I was di… cussing the subject, said that he treated these patients … successfully with thyroid extract, because in a number o… cases the pituitary fossa was shown by *x* rays to be … enlarged. Since then I have had all my patients *x*-rayed … and it was always reported that the pituitary fossa was … normal in size. I also found thyroid extract in these … cases of little therapeutic value. Discussing this with Dr. … Miller, radiologist to All Saints' Hospital, he informed me … that he had seldom seen the pituitary fossa enlarged, but … had noticed in a large number of cases the presence of … sacral spina bifida occulta. The *x* rays I have taken since … both at All Saints' Hospital and at St. Mary's Children's … Hospital (Plaistow), confirm his observation. It is probable … therefore, that nocturnal enuresis in children is due to a … delayed development of the autonomic nervous system, and … even as re-education is useful in the treatment of tabes … dorsalis, so voluntary vesical education, by hastening the … development of vesical reflexes, can cut short the period … of enuresis.—I am, etc.,

London, W.1, Dec. 5th. F. MCG. LOUGHNANE.

AVERTIN ANAESTHESIA.

SIR,—I have read Dr. Langton Hewer's letter in your … issue of November 29th, and note what he says about … Mr. Howard Jones's work on high spinal block with … percaine. I saw percaine used in Vienna (not as a spinal … anaesthetic) over a year ago, and I was not altogether … impressed with its value. Just prior to this I witnessed … high spinal anaesthesia in Bucarest, where novocain … employed. I was able to obtain opinions and literature … I can find no allusion to anoxaemia. Before the introduc… tion of avertin to this country I was constantly using … spinal anaesthesia (stovaine) for operations upon the … stomach and gall-bladder, where a preliminary dose of … 1/6 grain of morphine had been administered. I cannot … recall a single case of anoxaemia under these conditions. … Since the arrival of avertin I have used this drug in … combination with spinal anaesthesia (both stovaine and … spinocain) for major operations in the neighbourhood … of the diaphragm, chiefly partial gastrectomy, gastro-… enterostomy, and cholecystectomy, but without the use of … morphine. I have never witnessed any symptoms of … anoxaemia, and after a very considerable experience I am … at a loss to explain them. Patients in my clinic (and … I am sure the same obtains in Dr. Hewer's clinic) are … very carefully examined as to the kidney, liver, and heart … function before avertin is administered; the dose of avertin

per body weight is checked by a second person, and the avertin is tested with Congo red for each dose given.

In the fatal case mentioned by Dr. Hewer two important questions arise: (1) Was morphine or any derivative given previously, immediately, or remotely? (2) Was the correct dose of avertin administered to a suitably receptive patient? In over two and a half years' experience, using avertin in combination with field blocks, spinal blocks, and very light ether anaesthesia, I have not yet had any disconcerting experience in the form of anoxaemia or deaths. Perhaps I have been lucky, but I feel sure the luck has accrued from not using this drug indiscriminately, from not using it injudiciously in conjunction with morphine or chloroform, or any drug which is going to hinder its excretion or likely at the time to depress the vital centres. The ideal is undoubtedly the combination of avertin with gas and oxygen, as I saw it used by Sir Francis Shipway. There was no evidence of anoxaemia.

In your issue of December 13th Dr. F. B. Parsons suggests that I am unacquainted with the German literature on avertin, and quotes from a paper written by Haas (*Deut. med. Woch.*) and published in 1927. I should like to disillusion Dr. Parsons of this suggestion, as I have waded through much German literature on the subject. Further, the year of the publication referred to was the very year I took the trouble to go to Germany to see avertin used, so as to find out at first hand what its clinical properties really were. The avertin then used was the solid form, and it was being used in combination with very light ether inhalation (amnesic dosage), or, to be more lucid, "dosage very far short of that required to produce full or complete surgical anaesthesia." I asked why ether was necessary, and was informed that avertin was a basal narcotic that by itself, in safe dosage to the patient, was insufficient to produce complete surgical anaesthesia. This very fact is stressed all through the pages of the pamphlet issued by the manufacturers.—I am, etc.,

Bradford. BASIL HUGHES.

PARTURITION PER PERINEUM.

SIR,—I have been much interested in the memorandum by Drs. Tindal and MacLennan on a case of parturition per perineum, published in your issue of November 22nd (p. 863), and in the correspondence which has ensued. Some of these cases are undoubtedly due to a contraction of the transverse diameter of the pelvic outlet, the effect of which is to narrow the pubic arch. This leaves insufficient space for the presenting part to emerge directly beneath the symphysis pubis, and it is pushed further and further backward until, in extreme cases, delivery takes place in what Klein describes as the posterior sagittal diameter of the outlet. The fact that there had been an extensive tear at the previous confinement in the case recorded by Drs. Tindal and MacLennan suggests the presence of a contraction of this type. It would be of interest to know whether such a condition was noted in any of the cases described by your correspondents.—I am, etc.,

Derby, Dec. 8th. GERALD F. KEATINGE, M.D.,
Honorary Assistant Surgeon, Derbyshire Hospital for Women.

Obituary.

ANDREA RABAGLIATI, M.D., F.R.C.S.,

Consulting Gynaecologist, Bradford Infirmary, and Consulting Surgeon, Bradford Children's Hospital.

WE regret to record the death, on December 7th, of Dr. Andrea C. F. Rabagliati, after a long and distinguished career. He was born in Edinburgh in 1843. His father, an officer in the Italian Army, was engaged in the earliest insurrection against the Austrian domination, and on the failure of that attempt fled to Scotland. He stayed for some time at the manse in Kelso, and then went to Abbotsford, reading Italian with Sir Walter Scott. Subsequently he settled in Edinburgh and married a Highland lady.

Andrea Rabagliati was educated at the Royal High School, after which he stayed for two years with an uncle in British Guiana, returning in 1862 to study medicine at Edinburgh University, and graduating M.B. in 1869. In 1872 he proceeded M.D. with first-class honours, and won the gold medal for a thesis on relapsing fever. In 1890 he obtained the Fellowship of the Royal College of Surgeons of Edinburgh. After graduating Dr. Rabagliati became assistant to the late Dr. Leeson, medical officer to the Bradford Workhouse. He was appointed assistant medical officer to the workhouse, and in 1870 became house-surgeon to the Bradford Infirmary, a post which he held for two years. In 1872 he began private practice, speedily coming to the front rank of Bradford medical men. In 1877 he was appointed surgeon to the Bradford Infirmary, assistant surgeon to the Eye and Ear Hospital, and medical officer to the Bradford Fever Hospital. In 1882 a small children's hospital, originally with only twelve beds for incurables, was opened in Hanover Square by private enterprise to supplement the provision for children in the Bradford Infirmary, but encountered considerable opposition. Dr. Rabagliati strongly sympathized with the undertaking, and in conjunction with Dr. Burnie and the late Dr. Harry Meade, gave it all the help in his power. In 1887 the hospital moved to larger premises in Springfield Place, and a scheme was set on foot to build a large and properly equipped children's hospital. The present institution, which has been considerably expanded, was opened in 1890, and Dr. Rabagliati was appointed consulting surgeon.

Dr. Rabagliata was instrumental, with the untiring help of his wife, in establishing St. Catherine's Home for Cancer, and when this was opened he was appointed consulting surgeon. He was also consulting surgeon to the Bingley Hospital, senior physician to the Actors' Association, London, and to the Music Hall Artistes' Association, London, and consulting gynaecologist to the Bradford Royal Infirmary. Although he held so many surgical appointments, his bias was always towards medical practice, which interested him greatly, and more and more he was consulted in medical cases, especially with reference to diet. He published numerous books on this subject, and built up a large consulting practice on dietetic lines; he was often urged to give up all general practice and confine himself to consulting work. That he did not definitely take this step was thought by many to be a mistake, but he held strong views about the responsibility of medical practice, and believed that he could do more good by the general care and guidance of patients whose cases were well known to him than by occasional specialist advice. However, in spite of himself, his consulting work rapidly increased; he had also a heavy load of correspondence, and so the general practice side of his work was virtually squeezed out. He continued in his profession without intermission, taking but few holidays, from 1872 until his 87th birthday in May, 1930, when he was first taken ill. After a week or two he resumed his work, which he continued until the end of July, when the state of his health forced him to abandon practice, to his bitter disappointment.

Dr. Rabagliati took a great interest in the work of the British Medical Association. He was a member of the council of the Yorkshire Branch from 1888 to 1892, president of the Branch 1893–94, and vice-president from 1895 to 1915.

DR. HALLIDAY SUTHERLAND writes: In his early professional life Dr. Rabagliati realized that many chronic ailments arise from excess of food products, which stagnate in the lymphatic system. To overcome this condition he placed his patients on a starvation diet. The value of that treatment in suitable cases is now recognized, but when Dr. Rabagliati acted on his conviction it entailed the loss of a large practice. This was gradually rebuilt on lines in which he believed to the end. His books did not reach a large circle of readers. The style in which they were written belonged to an earlier period, and their author was fond of coining new words based on Greek roots, which puzzled the non-classical reader. When more is known about the role of the lymphatic system in the causation of disease A. C. F. Rabagliati will rank as a pioneer.

HUBERT PINTO-LEITE, B.A., M.R.C.S., L.R.C.P.,

Anaesthetist to the Westminster Hospital and the Evelina Hospital for Sick Children.

WE much regret to announce the death on December 12th, in London, after a long illness, of Dr. Hubert Pinto-Leite, at the age of 51. He was the eldest son of the late Joaquim Pinto-Leite, Portuguese Vice-Consul in Manchester, and received his early education at Beaumont and Stonyhurst, entering Caius College, Cambridge, as a medical student in 1899. At Cambridge he was well known in musical circles as a tenor soloist and member of the "Caius Quartette." Having graduated B.A. with honours in the Natural Sciences Tripos, he joined St. George's Hospital, and obtained the M.R.C.S., L.R.C.P. diplomas in 1908. Then, after serving as house-physician and house-surgeon at St. George's, he began private practice in Fellows Road, Hampstead, and was soon appointed honorary anaesthetist to the London Throat Hospital and to the National Dental Hospital. For several years before the war he had held a commission as lieutenant in the R.A.M.C. (T.F.), and was mobilized in August, 1914, with a field ambulance attached to one of the London Territorial divisions. His war service overseas included duty as registrar of the 44th Indian General Hospital, officer in charge of the Medical Division of No. 44 Stationary Hospital, E.E.F., and D.A.D.M.S., with the acting rank of major. He was awarded the Territorial Decoration. Returning to civil life after the war, Dr. Pinto-Leite added steadily to his reputation as a skilful administrator of anaesthetics, and in that capacity was elected to the honorary staffs of the Westminster Hospital, the Evelina Hospital for Sick Children, the Hospital for Women, Soho Square, the Golden Square Throat Nose and Ear Hospital, and the Royal Dental Hospital. When the British Medical Association held its Annual Meeting in Glasgow in 1922 he was honorary secretary of the Section of Anaesthetics, and for a number of years he was a valued occasional contributor of notes and reports on this subject in our columns. His only signed contribution to medical literature was a paper published in the *Westminster Hospital Reports* for 1925, on "Lung complications disclosed post mortem after surgical anaesthesia." Before the onset of his last illness Dr. Pinto-Leite undertook part-time duty as medical superintendent of the Hospital of St. John and St. Elizabeth. He was also honorary secretary of the Society of Members of the Royal College of Surgeons of England.

Hubert Pinto-Leite, known affectionately to all his intimates as "Pinto," was a most generous, warm-hearted friend, loyal and unselfish, diligent in well-doing: a man who could be relied on to carry out faithfully and punctually every task he undertook, without regard to his own interest.

By the death, at the age of 83, of Dr. C. HENRY PHILLIPS at Bournemouth on November 23rd, medicine has lost one of the finest type of general practitioner. He studied at Owens College and became L.S.A. in 1875, M.R.C.S. in 1876, F.R.F.P.S.Glasg. in 1885, and M.D. of the University of Durham in 1894. For over forty years he had a large practice in Hanley, Stoke-on-Trent. For thirty-six years he was medical superintendent of the Stoke-on-Trent Infectious Diseases Hospital at Bucknall, and for twenty years held a similar office at Dagnall Small-pox Hospital. He was a justice of the peace for Hanley for twenty-nine years, and also a member of the school board and of the town council. A colleague writes: When a practitioner covers so wide a field of work as did Dr. Phillips it might be thought that much of his knowledge would be superficial, but this was not the case. He contrived by dauntless energy to acquire as deep a knowledge of several branches of medicine as most can attain merely of one. He kept abreast of modern methods, and until blindness afflicted him five years ago was an excellent bacteriologist. Of unassuming disposition, he did not think of himself as a teacher, but was a much greater one than he knew, not realizing how absorbing to younger practitioners it can be to hear discourses upon typhoid or small-pox from one who can number his cases of these now rare diseases by hundreds or even thousands. He had notes of 3,700 midwifery cases which he considered presented some point of interest, and until he retired from practice eight years ago never spared himself in this branch of work. The financial aspect of medicine did not concern him greatly. The patient most in need of his care was the one who invariably got it. His day would be amazingly varied. After a night spent with a case of difficult labour the doctor might find him amputating a leg down a coal mine, then rushing to the fever hospital to perform a tracheotomy, in addition to attending to the many calls of a large panel practice. He bore his five years of blindness with much uncomplaining patience, though it must have been a great trial to a man still so interested in his profession, and who had planned to spend his well-earned leisure in further study of it. The sympathy of a large circle of friends will go out to his widow and daughter.

Dr. CHARLES SCOTT KILNER, who died on December 1st at his residence in Bury St. Edmunds, at the age of 77, was one of the most popular medical practitioners in West Suffolk. He received his medical education at Edinburgh, where he studied under Lister, and graduated M.B., C.M. in 1876; he obtained the D.P.H.Camb. in 1889. After acting as assistant at Oundle and Burton-on-Trent he returned home to Bury St. Edmunds in 1878 to join his father in practice. For more than fifty years he was medical officer of health and public vaccinator for two districts of the Bury St. Edmunds Union, and on his resignation two years ago he received a presentation from the Board of Guardians, to mark the devotion he had shown to this side of his medical work. At the time of his death he was medical officer to the Thingoe Rural District Council, and had a very thorough knowledge of social conditions in the villages. He was officially concerned with the first houses built in the county under the Housing of the Working Classes Act (1890), having already realized the importance of overcrowding in the causation of ill-health. Dr. Kilner was honorary consulting medical officer to the West Suffolk Hospital, and was elected a life governor in recognition of his great services to that institution. During the war he was medical officer to the Northgate Red Cross Hospital, and in 1920 he was made a Member of the Order of the British Empire. He held the post of president of the East Anglian Branch of the British Medical Association in 1901, and since 1899 had been surgeon to the West Suffolk Constabulary. He was appointed a magistrate for the borough of Bury St. Edmunds in 1916, and actively identified himself with various social and religious activities in the town. He is survived by four daughters and two sons, one of whom is in the medical profession.

Dr. RONALD T. HERDMAN, deputy medical officer of health for Bedfordshire, died suddenly on December 5th. He appeared to be in his usual health that morning, and among other duties attended a meeting of the County Education Committee. He was born in October, 1877, and studied medicine at the University of Edinburgh, graduating M.B. in 1894. He proceeded M.D. in 1901 and obtained, also, the Cambridge D.P.H. On leaving Edinburgh he devoted special attention to diseases of the ear, nose, and throat, and, after holding a house appointment at the Surrey County Hospital, was house-surgeon at the Throat Hospital, Golden Square, London. During the South African war he acted as a civil surgeon, and served in France with the rank of temporary lieutenant R.A.M.C. during the late war. He was appointed deputy medical officer of health and school medical officer by the Bedford County Council in 1912, when the duty of examining elementary school children was first placed upon the county and borough councils. Outside his professional work Dr. Herdman's chief interest was in the British Legion, and he attended the annual dinner of the Bedford branch on the evening of his death. He was a member of the British Medical Association and a Fellow of the Society of Medical Officers of Health. By his death the county loses one of its most conscientious and public-spirited officials.

The town of Aberdeen and the medical profession have sustained a severe loss in the recent death of Dr. DAVID WATSON GEDDIE, consulting physician to the Royal Aberdeen Hospital for Sick Children. A son of the manse, Dr. Geddie was born in 1864, his father being for many years Free Church minister of Banff. After graduating in arts and medicine in the University of Aberdeen, he was for several years assistant to the late Dr. Miller of Fort William, and the rest of his life was spent in general practice in Aberdeen, where he was anaesthetist, and subsequently physician, to the Children's Hospital. As a practitioner and as hospital physician and teacher he gave of his best to his patients and students. His sound practical knowledge, and his gift of lucid exposition, gained for him well-merited appreciation. A man of wide culture, and an artist of no mean ability, he had wide interests and a broad and sympathetic outlook on life. The fine qualities of his character were displayed in his unselfish devotion to patients of all classes, and in the way in which he was always able to give help and advice to his younger colleagues. To have known him well was a great privilege, and is now a happy and inspiring memory. To his widow and family his many friends tender their deepest sympathy. Dr. Geddie was a member of the Aberdeen City Division of the British Medical Association and was President of the Aberdeen Branch in 1925–26.

Medico-Legal.

THE MARKING OF SURGICAL GOODS.

INSTRUMENT MAKERS FINED.

BOARD OF TRADE summonses under the Merchandise Marks Act were heard at Marlborough Street Police Court on December 10th against the Surgical Manufacturing Co. Ltd., of Mortimer Street, W. Two summonses alleged that the company advertised, or offered for sale under a specific designation, by means of an illustration and written matter in a catalogue, certain imported goods of a class to which an Order in Council under the Merchandise Marks Act, 1926, applied, and that the company did not include in such advertisement an indication of the origin of the goods. A third summons alleged that the company sold certain imported surgical articles which did not bear an indication of the origin. Mr. G. B. McClure appeared for the Board of Trade, and Mr. J. N. Nabarro represented the company.

Mr. McClure stated that on July 15th a Dr. Hayward sent for a catalogue of surgical goods, and it was alleged that this contained advertisements of goods of which the origin was not marked. An order for an article was given by him. On September 24th Mr. Mayer, a member of a firm of surgical instrument makers, selected an article out of another catalogue, and sent a messenger with the order. The article received was of foreign origin—German, he thought. The price of the article (10s. 6d.), a Mayo's needle-holder and thumb-release, was such that it could not possibly be British. In October a nurse named Miss Drew went with her father to the same place and chose a dozen surgical instruments. Ten of these were foreign. "If it be that this firm have made a mistake and were bringing over articles from Germany and were putting finishing touches to them, they come within the purview of the Act," said Mr. McClure.

Mr. A. W. Cobden, employed by a firm of surgical instrument manufacturers in St. Thomas's Street, S.E., said that on July 15th Dr. Hayward sent for a catalogue of medical goods, and one was sent to him. Advertised in it were goods which did not bear an indication of the country of origin. Answering Mr. Nabarro, who said he understood that Dr. Hayward was in the Indian Medical Service, the witness did not know if it would be necessary to have the indication of origin if the goods were to be used abroad.

Mr. E. W. Mayer, a partner in the firm of Messrs. Mayer and Phelps, New Cavendish Street, said that an article supplied from the catalogue to him was undoubtedly of German origin. When he first received it he sent it back, and had a letter written to the defendant company asking them to let him know whether the article was British or foreign, as their firm had to declare it under the Merchandise Marks Act. They received back what appeared to be the same instrument, but it had a little tab, "Surgical Manufacturing Co. Ltd." and the word "Foreign" attached to it.

Mr. Nabarro: When it was observed that this article was foreign it was marked accordingly.

Mr. Nabarro said that the defence in regard to the catalogue was that, as it was for a doctor in India, it was not necessary for the articles to be marked with the country of origin. With regard to the summons relating to the sale of articles to Miss Drew, two of the articles were undoubtedly British. As to the remainder, they were certainly unmarked, and he pleaded guilty.

Evidence was given by Mr. W. E. Birch, employed by the defendant company. He said that some thousands of these catalogues were printed and dispatched early this year before arrangements were made with the Board of Trade to insert slips indicating articles which were of foreign manufacture. Since then the catalogues had been bound with the slips inside.

Mr. Nabarro submitted that no great harm had been done, and asked the magistrate to impose a nominal penalty.

The Magistrate (Mr. R. E. Dummett): "There is no doubt whatever in my mind there has been an infringement of the Act and an attempt on the part of the company to pretend that the bulk of the goods were of British make when in fact they were not." He imposed a fine of £2 with £2 2s. costs on the first summons, £2 with £10 10s. costs on the second summons, and 10s. with £3 3s. costs on the third summons.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE adjournment of Parliament for Christmas was fixed for December 19th. Earlier in the week the Government proposed to complete the passage of the Education (School Attendance) Bill through the House of Commons. A debate on unemployment was also arranged. The House of Lords was occupied with the Expiring Laws Continuance Bill.

Lieut. Commander Kenworthy gave notice that in the House of Commons, on December 16th, he would introduce a Vivisection Experiments Bill—"to prevent the application of public money to vivisection experiments." (See *Supplement*, p. 261.)

Humane Slaughter.

In the House of Commons, on December 12th, Lieut.-Colonel MOORE moved the second reading of the Slaughter of Animals Bill. He said the bill had the support of scientists, doctors, and public authorities. Professor Hobday of the Royal Veterinary College, Professor Cathcart of the University of Glasgow, and Professor Barger of Edinburgh supported it. Approximately 16,000,000 animals were slaughtered each year, and the bill sought to secure that all animals were effectively stunned before slaughter. The humane killer had been made compulsory by 370 local authorities, and the bill would bring recalcitrant authorities into line. The present system caused unnecessary suffering. A report to the Corporation of the City of London, signed by the medical officer of health to the Corporation and by the veterinary surgeon to the Corporation, declared that no exception could be taken to the efficiency of the bleeding of carcasses killed by the humane killer. He had hundreds of letters from medical officers testifying to the efficiency of the method of slaughter proposed in the bill. The bill exempted small farmers, peasants, and others who killed a pig at irregular intervals for their own consumption. It also exempted the Jewish and Mohammedan communities. One clause of the bill gave local authorities power to grant licences to ensure that those who slaughtered were duly qualified. Adequate inspection was proposed for the 20,000 private slaughter-houses.

Mr. LANG moved the rejection of the bill, and called for a select committee to investigate the subject.

Mr. GREENWOOD said an Act which went some way to meet the problem in Scotland had been on the Statute Book two years, and worked pretty well. A growing number of local authorities had adopted by-laws enforcing humane slaughter of animals, including pigs. The chief opposition came from the bacon curers.

Mr. SOMERVILLE HASTINGS said that he spoke as a surgeon. The physiology of human beings was similar to that of the larger animals used for food. Surgeons had learnt that it paid to anaesthetize, and that was what the bill proposed.

Dr. GRAHAM LITTLE said that bungling was more likely with the pole-axe than in the use of the humane killer. He pointed out that in scientific experiments on animals most careful regulations were enforced to prevent pain and suffering.

Dr. FREMANTLE, as one who had been a medical officer of health and had seen the big abattoirs of Paris and Germany, welcomed the bill.

The bill was read a second time without a division, Mr. Lang's amendment for its rejection being withdrawn.

Noxious Fumes and the Meuse Valley Fog.

On December 10th Mr. MORRISON informed Colonel Howard-Bury that the first section of Battersea Power Station would be completed by the end of 1932 or the beginning of 1933. The assertion that such great chimneys emitted sulphurous fumes,

and in certain states of the atmosphere might lead to a condition such as had happened in the Meuse Valley, was unsupported. The Electricity Commissioners had taken every precaution to prevent such mishaps. Replying to Mr. Hore-Belisha on December 10th, Miss SUSAN LAWRENCE said that the Ministry of Health was arranging to obtain a report of the official inquiry into the loss of life during the recent fog in the Meuse Valley. Mr. GREENWOOD informed Colonel Howard-Bury and Mr. D. G. Somerville, on December 11th, that he had asked for a copy of the inquiry into the sixty-five deaths in the Meuse Valley. Until the facts were ascertained, he knew of no grounds for assuming that sulphuric acid, or any other fumes, were associated with them. Regarding the Battersea Power Station, it would be practicable to install there a plant which would reduce the emission of sulphur fumes to a negligible quantity. He considered it would be in the public interest that the report on the Meuse Valley fog should be widely spread.

Housing.

Mr. GREENWOOD told Sir D. Newton, on December 10th, that the Exchequer contribution paid during the year 1929–30 under the Housing Act, 1919, was £6,738,118; under the Housing Act, 1923, £2,141,089; and under the Housing Act, 1924, £2,253,087. The numbers of houses completed under each Act at March 31st, 1930, were respectively, 175,639, 389,193, and 232,900. Replying to Mr. Somerville Hastings on the same date, Mr. GREENWOOD said that up to October 31st, 1930, 313,862 houses had been completed by local authorities in England and Wales under the Housing (Financial Provisions) Act, 1924.

Replying to Dr. Forgan on December 11th, Mr. GREENWOOD said that up to December 1st last 258 proposals for the provision of 13,979 houses had been received from local authorities in England and Wales under Subsection (1) of the Housing Act, 1930. In addition, eighteen authorities had passed resolutions declaring areas containing a population exceeding 13,360 persons to be clearance areas, and one authority had passed a resolution declaring two areas, containing 188 houses, to be improvement areas. Five compulsory purchase orders and two clearance orders had been submitted to him. Under Subsection (2) of the Act, which related to urban areas with populations exceeding 20,000, fifteen programmes, providing for 44,300 new houses, of which 14,923 would be allocated to the rehousing of 65,861 persons, had been submitted.

Sale of Poisons.

Mr. CLYNES told Sir George Penny on December 11th that he hoped a bill would shortly be introduced to simplify and strengthen the law relating to poisons. Sir George Penny suggested that licensed vendors of arsenic, such as corn merchants, ironmongers, etc., should be made to comply with the same regulations as registered chemists. Mr. CLYNES said that the existing provisions of the law on the sale of arsenic, and on poisons generally, applied equally to registered chemists and to other licensed vendors. Licensed vendors were, in addition, subject to regulations made by Order in Council under Section 2 of the Poisons and Pharmacy Act, 1908.

Dangerous Drugs.—Mr. SHORT informed Dr. Fremantle on December 3rd that the report of the preliminary conference on the limitation of manufacture of dangerous drugs had been sent to the League of Nations and was in course of being printed. He could not say how soon copies would be available.

Infant Mortality.—Mr. GREENWOOD told Dr. Fremantle on December 3rd that the increase of infant mortality in 1924 was due to an epidemic of influenza, and that of 1929 to a similar epidemic coupled with an epidemic of whooping-cough.

Tuberculosis.—In reply to Sir Bertram Falle on December 3rd, Mr. GREENWOOD said that persons who had received treatment for tuberculosis in sanatoriums were instructed in the precautions necessary to avoid the risk of infecting others when discharged, and it was the duty of local medical officers of health to take such steps as were necessary or desirable to prevent the spread of infection.

Schick Testing.—On December 9th Mr. GREENWOOD informed Mr. Freeman that he had sanctioned provision of facilities for Schick testing and immunization against diphtheria in thirty-eight districts in England and in two in Wales, and he had information that these facilities were also provided in other areas.

Arsenic in Sweets.—Replying to Mr. Freeman on December 10th, Miss LAWRENCE said that the Minister of Health was aware of a number of recent cases of poisoning of sweets, notably by arsenic. The local authority concerned had taken suitable action, including prosecution of persons responsible. Officers of the Department had kept in close touch with those of the local authority in the course of investigations, and it was not thought necessary to hold any special inquiry into the matter. Consultations were taking place on legislation to guard against the accidental misuse of poisons.

Inspection of School Children.—Sir C. TREVELYAN, in reply to Mr. Somerville Hastings on December 11th, said that about six minutes was occupied on the average in the inspection of each child examined at routine medical inspections. Children c... covered, or suspected to be suffering from, defects requiring ... detailed investigation were referred for subsequent examina... The time then given to any particular child varied with the na... of the defect.

Notes in Brief.

A provision that a suitable and efficient appliance for ex... guishing fire must be carried is to be embodied in Ministry ... Transport regulations for public service vehicles.

Cases of encephalitis lethargica notified in the administra... county of Lindsey (excluding the county boroughs of Grimsby ... Lincoln) were: 5 in 1928, 10 in 1929, and 6 up to the end ... November, 1930. The local course of the disease is receiving ... attention of the medical staff of the Ministry of Health.

Universities and Colleges.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examina... indicated:

THIRD M.B., B.S.—*M. P. Ellis, †R. A. Fitzsimons, *Beatrice M. Jo... †G. L. Jones, *M. Kremer, ‡§D. W. C. Northfield (University ... §A. W. M. Rooke, E. F. Barnardo, F. G. L. Barnes, J. N. Bl... W. L. M. Bigby, J. G. Bowen, W. E. R. Branch, Dora E. Brothe... F. E. Camps, W. H. P. Cant, A. G. Carmichael, Rosa E. Chis... A. Clark, E. E. Claxton, F. S. Cliff, W. D. Coltart, T. V. Cor... Catherine B. Crane, H. J. Croot, Marian J. Cunning, Catherine D... C. E. Dolman, D. G. Evans, J. D. S. Flew, Beryl M. Ford... Kamala Ghosh, Olive N. Grant, Mary W. Hamlyn, Flora Hargreav... Lettice P. Harrison, K. W. D. Hartley, Honor E. C. Harv... A. S. Hatch, Katherine M. Heberlet, P. Y. Hicks, R. E. Hol... E. B. Jackson, H. B. Jackson, E. K. Jones, J. F. L. King, G. C. Knig... H. J. Knight, Nellie I. Lanckenau, L. J. M. Laurent, I. W. Laur... A. Levy, Annie M. McGrath, Joyce MacInnes, A. H. M. McMil... Moyra I. Macnaughton-Jones, Eileen M. Massey, Elizabeth T. Mo... J. R. Murray, A. M. Nussbrecher, R. A. C. Rice, R. S. Risk, A. R. ... Robb-Smith, C. P. Scott, Violet R. Sharp, Dorothy A. Sha... N. L. Shepperd, Everell M. Shippam, C. K. Simpson, Effie Sta... D. Stanley-Jones, H. H. Steadman, F. H. Stevenson, T. S. Ste... E. G. Thomas, C. J. L. Thurgar, E. S. Vergette, J. C. S. Wel... A. S. Wigfield, E. R. Williams, Maureen D. Willmott, Ru... T. H. Wilson.

* Distinguished in medicine. † Distinguished in forensic medi...
‡ Distinguished in surgery. § Distinguished in midwifery.

UNIVERSITY OF DUBLIN.

TRINITY COLLEGE.

AT the first winter commencements, held on December 11th, ... following degrees and licence were conferred:

M.D.—E. A. Bennet, C. Gordon, M. Gerber, D. V. Latham.
M.B., B.CH., B.A.O.—G. Caldwell, T. H. Dockrell, H. H. G. Dun... E. S. Duthie, G. F. Ennis, F. P. Fitzgerald, N. A. Kinnear, H. S. Ne... W. A. Robinson, J. B. Scott, Kathleen A. Wilson.
LIC. MED., SURG., AND OBSTET.—D. J. O'Ryan.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary meeting of the Council of the Royal College ... Surgeons of England was held on December 11th, when ... President, Lord Moynihan, was in the chair.

Fellowship.

Diplomas of Fellowship were granted to the following th... candidates:

Gladys M. Sandes, J. M. Clarke, W. G. S. Brown, Annie Pichalmuth... J. H. Saint, R. C. Tatham, N. W. Bolton, J. C. Hogg, W. S. Chapm... R. Marnham, B. R. Sworn, R. H. Metcalfe, D. G. Bown, F. H. ... Walker, A. Ali, P. N. Ray, R. S. Pilcher, W. Hynes, J. T. Chesterma... M. R. Ernst, E. N. Wardle, H. Yousri, M. D. Patel, J. R. Peasn... P. J. Ganner, N. R. Barrett, A. C. Fisher, W. E. Tucker, H. S. Tayl... Young, C. E. Corrigan, A. D. Everett, F. W. Holdsworth, R. Pur... T. J. Millin, F. R. Stansfield, F. F. D'Arcy, S. G. David... D. I. Fitzpatrick, E. C. B. Jones, J. F. Kemble, K. Lound... E. G. MacMahon, N. St. C. Mulhearn, L. R. Olver, K. C. T. Rav... C. A. M. Renou, V. N. Shirodkar, G. R. A. Syme, J. Taliat, S. A. M... Thompson.

Membership.

Diplomas of Membership were granted to the following can... dates, who had complied with the regulations: Marjorie L... Marjorie Lunn, Ethelwyn Newham, D. Ockman.

The Licence in Dental Surgery was granted to Pondich... Somasunder, M.R.C.S.

Court of Examiners.

The following were elected members of the Court of Examiner... Russell John Howard (re-elected), surgeon, London Hospit... E. C. Hughes, assistant surgeon, Guy's Hospital; Lionel E. ... Norbury, surgeon, Royal Free Hospital.

Primary Fellowship Examination in Canada.

It was decided, on the request of the Canadian Medical Asso... tion, to hold a Primary Examination for the Fellowship in Cana... next year, subject to satisfactory arrangements being made.

The thanks of the Council were given to Sir Frederic Hallett ... his revised catalogue of portraits and busts of the College, w... short biographical notices and illustrations. Copies may ... obtained from the Secretary, price 3s. cloth, 2s. 6d. boards.

Medical News.

THE Royal College of Physicians of London will be closed from Wednesday, December 24th, until Wednesday, December 31st, both days inclusive.

THE Royal Society of Medicine will hold its next reception at 1, Wimpole Street, W.1, on Wednesday, January 21st. The president and Mrs. Watts Eden will receive Fellows and their guests at 8.30 p.m., and at 9.15 p.m. Dr. Arnold Chaplin will give an address entitled "Great figures in history, or misconceptions removed." Various objects of interest will be exhibited in the library. Admission will be by ticket only, applications for which should be addressed to the secretary.

AT a meeting of the Society for the Study of Inebriety, to be held in the rooms of the Medical Society of London, 11, Chandos Street, Cavendish Square, W., on Tuesday, January 13th, 1931, at 4 p.m., the Rev. Courtenay C. Weeks, M.R.C.S., L.R.C.P. (editor of the *National Temperance Quarterly and Medical Review*), will open a discussion on "Alcoholic indulgence in relation to motor transport." Members and associates may introduce visitors.

THE London Jewish Hospital Medical Society (Stepney Green, E.1) has arranged two symposiums for the ensuing session. The first, on February 12th, 1931, on "The trend of medical practice," will be opened by Mr. Somerville Hastings. The second, on April 9th, on "Modern advances in brain medicine and surgery," will be opened by Dr. Gordon Holmes and Mr. Julian Taylor.

H.H. PRINCESS HELENA VICTORIA has promised to attend the annual children's festival of Dr. Barnardo's Homes, to be held in the Royal Albert Hall on the afternoon of Saturday, January 17th, 1931.

THE second International Congress and Exhibition of Sanitary Engineering and Municipal Hygiene will take place from April 20th to 26th, 1931, in Milan, under the patronage of the King of Italy. Full particulars may be had by applying to the Secretary-General of the Congress, 17 Piazza del Duomo, Milan, Italy.

THE Minister of Health has issued a Memorandum (131 c/T) containing an analysis of the work done during 1929 under the schemes of local authorities for the treatment of tuberculosis, the information having been supplied by returns furnished in accordance with Memorandum 37/T. There has been a steady increase in the proportion of the total tuberculous population which is dealt with by these local authorities, and a continued fall in the proportion of undiagnosed cases on the dispensary registers; more examinations of sputa are being performed. The present Memorandum is intended to assist metropolitan borough councils in judging whether their schemes for the dispensary treatment of tuberculosis need any revision. Four circulars—namely 1154 (a), (b), (c), and (d)—have also been issued by the Ministry relating to the returns to be made by local authorities in respect of maternity and child welfare, tuberculosis, and venereal diseases. The Minister desires to know the number of cases of tuberculosis previously returned as cured which have relapsed, or shown indications of so doing. He also wishes to know the total amount of accommodation available on December 31st in England and Wales for the residential treatment of tuberculosis at approved institutions; forms have been designed for completion by local authorities and return to the Ministry not later than February 28th, 1931. Other forms have similarly been issued in the case of institutions approved for the treatment of venereal diseases.

THE welfare of African children will be discussed at an international congress to be held under the auspices of the Save the Children Union in Geneva in 1931, with special reference to infantile mortality, child labour and education, and child marriage.

THE twenty-first French Congress of Medicine will be held at Liège in 1931, under the presidency of Professor de Beco, when the subjects for discussion will be hyperthyroid states, metabolism of calcium, and the treatment of non-diabetic conditions by insulin.

THE second International Hospital Congress will be held at Vienna from June 8th to 13th, 1931, when the following papers among others will be read: the cost of hospitals, by Dr. Distel of Hamburg; the role of the hospital nurse, by Mlle Reimann of Geneva; hospital terminology, by Dr. Wirth of Frankfurt; hospital legislation, by Mr. Harper of Wolverhampton; out-patient departments, by Dr. Corwin of New York; the patient's diet, by Professor Van Noorden of Vienna; and the role of neurology and psychiatry in the general hospital, by Dr. Alter of Düsseldorf.

THE Royal Institute of Public Health will hold its congress in Frankfurt next year from Tuesday, May 19th, to Sunday, May 24th. The scientific work will be conducted in six sections—namely, State medicine and municipal hygiene; architecture, housing, and town planning; industrial hygiene; women and children and the public health; tuberculosis; and pathology, bacteriology, and biochemistry. Visits will be paid to places of interest in Frankfurt, and the chief spas and health resorts of the Rhine, including Wiesbaden, Homburg, Nauheim, Kreuznach, and Münster-am-Stein; one day will be spent in an excursion to the university and town of Heidelberg. Further information may be obtained from Dr. T. N. Kelynack, honorary secretary of the congress, 37, Russell Square, W.C.1.

THE November issue of the *Medical Women's Federation News-Letter* includes, among other articles, an account by Dame Janet Campbell of her impressions of maternity and child welfare in Australia, an analysis of the interim report of the Departmental Committee on Maternal Mortality and Morbidity by Mrs. Frances Iven-Knowles, and obituary notices of Dame Mary Scharlieb.

THE last issue of the *Fight Against Disease*, the quarterly journal of the Research Defence Society, includes notes on the R.S.P.C.A. and antivivisection, on asthma research, and on antivivisection in the war. It is published for the Society by Macmillan and Co. Ltd., St. Martin's Street, W.C.2.

THE KING has appointed Dr. Cyril Hartley Durrant, chief medical officer, St. Kitts-Nevis Medical Service, to be an official member of the Executive Council of the Presidency of St. Christopher and Nevis for a further period.

THE Röntgen Society and the Rhine Medical Society have conjointly decided to erect a monument to Röntgen at Lennep, near Düsseldorf, where he was born on March 27th, 1845.

DURING the last five years there has been a gradual increase in the incidence of cerebro-spinal fever in the United States, as is shown by the following figures: 1925, 1,859 cases; 1926, 2,226 cases; 1927, 3,204 cases; 1928, 5,781 cases; and 1929, 9,660 cases.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediocra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

Malaria and Blackwater Fever.

DR. C. J. PATEL (Kampala, Uganda) writes: Is there any preparation containing no quinine which can lower the temperature in blackwater fever and can destroy malarial parasites? I have had experience of 38 cases, and I find quinine does harm. I have seen the condition getting worse after small—say 1 grain—doses of quinine. When a patient becomes comatose, either in blackwater fever or in malaria, what treatment should be adopted? I have tried saline per rectum and glucose intravenously, but the result was not satisfactory, and two patients died that way in coma. How can the onset of coma be prevented, and what are the signs which indicate that coma is threatening?

"Warbles" in Man.

"F. L. M." writes: I have just had a most unusual case. A boy of 5 was brought to me with the history that he had had within the last few days two itchy and painful swellings, one just above the right ear and one over the left shoulder blade. The mother had squeezed them and had ejected two large white maggots, one of which was brought to me for examination. The swellings are large and pale, but not much raised, the one on the shoulder measuring 2½ in. by 1 in. On each is a small clean puncture, which admits a probe to a distance of about an inch. Serum can be expressed on squeezing. There is a history of a bruise on the head from a cow's horn, but there is no indication of injury to the shoulder and no sign of external abrasion anywhere likely to be infected by flies, and, in any case, this is not the fly season. The child is well nourished, strong, and healthy in every way; the parents are small farmers, and he is constantly in contact with cows, horses, and farm stock generally. The maggot brought to me is pure white, about half an inch long, and appears to have eight segments. I believe there is a common disease in cattle and deer due to fly, known locally as "warbles," in which lumps appear containing maggots, but I have never heard or read of a similar case in man. Can any reader state what larva this is likely to be, what was the probable method of infection, and what is the best treatment to get rid of any further manifestations?

Pruritus with Jaundice.

"W. F. T. A." asks for any suggestions which would help him to alleviate an intolerable pruritus arising from a progressive jaundice due to carcinoma of the head of the pancreas in a woman aged 60. All the usual methods of treatment have been tried, but without success.

Natural Labour after Caesarean Section.

DAME LOUISE MCILROY writes: In reply to the query published on November 22nd (p. 891), six cases of spontaneous or forceps deliveries following previous Caesarean section were published from the Royal Free Hospital Obstetrical Unit by Dr. Margaret Salmond, senior assistant, in the *Lancet*, October 15th, 1927. In all these cases the uterus stood the strain of labour perfectly. In one, two previous sections had been performed, and in three forceps were used as the second stage was prolonged. Since the publication of this paper three others have been delivered spontaneously. Taking the nine cases, the reasons for performing Caesarean section were: central placenta praevia in three, brow presentation in one, prolapsed cord in one, asymmetrical pelvis in one, toxaemia in two, disproportion in one, and syphilitic granulomata of the vulva in another. All the Caesarean operations were performed in the Royal Free Hospital, with the exception of the last two cases. The method of suturing of the uterus in most cases is four layers; the superficial row inverts the scar, so that adhesions are less likely to occur.

Income Tax.

Obsolescence Allowance.

"G. W." bought a car in 1926 for £330. He did not claim wear and tear allowance for the two years 1926–27 and 1927–28, but for the two subsequent years claimed and received allowances amounting to £66 in all. In April, 1930, the car was sold for £75, and replaced by one costing £171. What is the correct amount of the obsolescence allowance?

*** The loss on the old car is, of course, £330−£75=£255, less the sum of £66 already allowed—that is, £189—but only £171 can be claimed as obsolescence. The matter is governed by Rule 7, applying to Cases I and II, Schedule D, which provides for the allowance of "so much of any amount expended in that year in replacing any . . . machinery . . . as is equivalent, etc." It will be seen that the amount expended is the maximum amount allowable.

Agency Fees.

"A. S." explains that he has been refused the allowance of about £20 paid in agency fees over the two years 1928–29 and 1929–30.

*** We are of opinion that a medical practitioner who exercises his vocation by doing locumtenent work or by taking *short term* employment as an assistant should be assessed as continuously employed, and not separately as in respect of the earnings of a number of separate employments. If that is done—and that appears to be the usual course—the agency fees are, in our opinion, deductible as necessarily incurred in carrying on the profession in that particular manner.

LETTERS, NOTES, ETC.

Enlargement of the Thymus in Mumps.

DR. J. D. ROLLESTON (London, S.W.6) writes: Dr. E. Esquivel, referring to this complication of mumps (see *Epitome*, December 6th, para 500) expressed the view that it had not been described previously. It was observed, however, by the late Dr. Joseph Sailer of Philadelphia during an epidemic of mumps in a military camp in the winter of 1917–18, and was reported by him in *Contributions to Medical and Biological Research dedicated to Sir William Osler*, 1919, vol. ii, p. 1172.

Robert Liston.

DR. F. WILLIAM COCK (Appledore, Ashford, Kent) writes: You have recently published remarks on Syme's amputation. May I add an antiquary's note? When I was dresser, circa 1880, to Christopher Heath, at University College Hospital, it fell to my lot to attend to an old fellow who had had a Syme's done for him by Robert Liston. He told me that it was the last operation Liston had performed, somewhere in the early summer of 1847. I removed a small sequestrum from the flat end of the tibia, and though an old man, the patient healed quickly. I asked him what sort of a man Liston was; he said a big, handsome man, very bald. He also added that he used a good deal of forcible language, as indeed all pre-anaesthetic surgeons did. The next patient to this one was a cabman with a stricture, who made a considerable outcry when Liston passed a larglah silver catheter on him. "All right, my man, you needn't shout so much; you'll soon be able to drive your cab through this." A little on the rough side, Sir, perhaps, but for all that Liston was one of the kindest men going, and always ready to help the poor and penniless. I wonder if there is any surgeon nowadays who would have 500 students and medical men follow his funeral as was done when Liston died.

Mercurochrome.

DR. CECIL L. FORDE (Oxton, Birkenhead) writes: Mr. I. A. Chambers's article on the treatment of ocular diseases with mercurochrome (December 13th, p. 992) interests me very much. I have generally used a 2 per cent. solution of mercurochrome in a great variety of conditions, always as an antiseptic for the eye in the place of iodine, for varicose ulcers, septic conditions, dermatitis of various forms, pruritus and conjunctivitis, both acute and chronic, and blepharitis; in fact, I consider mercurochrome one of the most useful drugs we have at our disposal.

A Pregnancy Record.

"J. J. S." writes: I think the following case, if not a record, is very close to it. On January 2nd, 1930, at 3 a.m., Mrs. X., two-para, gave birth to a baby girl, but, on account of retracted nipples, the child did not suckle. On February 6th Mrs. X. menstruated again, and on November 13th, at 3.30 p.m., she gave birth to a full term 7¾ lb. baby boy (ten months and fifteen days). After twenty-two years' experience, part of that time as intern at a maternity hospital, I offer this as a record.

Puerperal Infection and Sanitation.

SURGEON CAPTAIN A. W. B. LIVESAY, R.N. (ret.) (Thorpe, Norwich) writes: I have for some time thought that the high maternal death rate might be due to infection during pregnancy from sewer gas escaping up through the trap in the ordinary water closet. The figures in the Interim Report of the Department's Committee on Maternal Mortality do not negative this view. According to these statistics America, prominent for perfect plumbing, has a mortality of 8.3 per 1,000; in France, notorious for poor domestic sanitation, the death rate is 1.5; Great Britain holds an intermediate position with a mortality of 4.3. Apparently, the better the sanitation the higher the maternal mortality. Failing some other explanation I consider the water-closet to be suspect. It would be interesting in this country to compare the figures from an urban district having a perfect water-carriage system with those of some rural area where the earth closet is still in general use.

Lyle and De Souza's "Physiology."

MR. HUMPHREY MILFORD writes: In our full-page advertisement of Oxford Medical Publications, which appeared on page II of your issue dated December 6th, we regret that by an oversight the authorship of *A Manual of Physiology for Students and Practitioners* (third edition) was attributed solely to Dr. H. Willoughby Lyle. It should be noted that, as in previous editions, the book was the result of the collaboration of the author with Dr. David de Souza. May we ask the courtesy of your columns to rectify the omission?

Second-hand Cars.

"BITTEN" writes: I wish to warn my colleagues of the risk they run in buying from anyone unless personally known. I bought a second-hand car in 1928, a year-old saloon model, of a well-known make, having run a car of the same make for five years previously. The period of the makers' guarantee had not expired. The agent who sold me the car gave me a written statement taking over the makers' guarantee. I had the car for about a year, during which time it cost about £80 in repairs and breakdown, and I sold it ultimately for £200 less than I paid for it. No one should buy a second-hand car without seeking expert advice from the A.A., or some equally reliable source.

Vacancies.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 43, 44, 45, 46, 47, 50, and 51 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48, 49, and 50.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *268*.

SCIENTIFIC ENZYME DIGESTION

RICH SELECTED ENGLISH MILK
Pancreatised

SELECTED ENGLISH WHEAT
Dextrinised and Pancreatised

PREDIGESTED MILK
(75% Protein Conversion)

PREDIGESTED WHEAT
(25% Starch Conversion)

Powdered by the
COW & GATE
Improved
Roller Process

Peptalac REGD.

THE NEW INSTANT PREDIGESTED FOOD

Predigestion of starch *and* milk is guaranteed and is effected under the most exact scientific conditions in our laboratories before powdering. This means that when required for use it can be immediately and simply prepared by the *mere* addition of hot water. The C. & G. Improved Roller Process is used ensuring retention of the full mineral and vitamin content with freedom from pathogenic organisms.

PEPTALAC is indicated in all those cases where the powers of the digestive tract are insufficient to deal with that amount of food necessary for maintaining health—for nursing mothers with weak digestions, in ante- and post-operative surgical cases, in achlorhydria, peptic ulceration, cancer of the alimentary tract, in all forms of convalescence and in old age.

SEND THE COUPON FOR

MANUFACTURERS OF THE Cow & Gate Milk Food CELEBRATED COW & GATE MILK FOOD

FREE CLINICAL SAMPLE

Name .....

Address .....

.....

COW & GATE LTD. GUILDFORD, SURREY

CITRONIN

A New and Effective Preparation for Alleviating Cough.

CITRONIN is a beautifully clear, cherry-red liquid with an agreeable aromatic fruity odour. It is not a "syrup."

The potassium guaiacol sulphonate in this preparation has a definite germicidal action and it possesses the advantage of not disturbing the digestion as other guaiacol salts do. The sodium citrate and citric acid stimulate bronchial secretion and also aid in liquefying the secretions thus formed. The action of ipecacuanha is well known, as is also that of ethylmorphine. Cascara Evacuant has been incorporated for its eliminative and intestinal tonic effects.

Bronchitis, subacute or chronic, suggests the use of Citronin, in which conditions it can be expected to loosen the dry cough within a short time. For adults the dose of Citronin recommended is one or two teaspoonfuls at intervals of not less than three or four hours.

Each fluid drachm of Citronin represents:—

Potassium Guaiacol Sulphonate ...	1 grain
Sodium Citrate	2-1/2 grains
Citric Acid	1/2 grain
Cascara Evacuant	3/4 min.
Fl. Ext. Ipecacuanha	3/8 min.
Ethylmorphine Hydrochloride ...	1/32 grain

Supplied in bottles containing 4 ozs., 16 ozs. and 80 ozs. A sample will be supplied on request.

PARKE, DAVIS & COMPANY

50, Beak Street, London, W.1.

Inc. U.S.A., Liability, Ltd.

LABORATORIES: HOUNSLOW, Middlesex.

D

Printed and published by the British Medical Association, at their Office, Tavistock Square, in the Parish of St. Pancras, in the County of London.